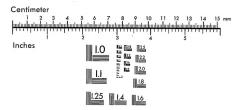


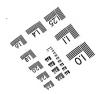


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A SELECTIVE MICROFILM EDITION

PART I (1850-1878)

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The eleven scrapbooks in this series cover the years 1860-1879. Most of the clippings date from the mid-1870s. Like the Menlo Park scrapbooks (see Menlo Park Scrapbook Series), the majority of scrapbooks in this series contain clippings from technical journals, popular magazines, and newspapers and relate to Edison, his inventions, and other technical and scientific matters in which Edison and his assistants were interested. However, the books in this series also contain a variety of other materials. Two of the scrapbooks (Cat. 1173 and Cat. 30,096) consist predominantly of correspondence and other manuscript material relating to the operation of Edison's Newark businesses during 1874 and his tenure as electrician for the Atlantic & Pacific Telegraph Co. in 1875. Another scrapbook (Cat. 1177) contains clippings of patent specifications and drawings from the annual reports of the patent commissioner for the years 1860-1868. There is also a book of electric pen samples (Cat. 593) and a book of catalogues and price lists from chemical suppliers (Cat. 30,102). Some of the scrapbooks also contain advertising circulars and brochures, technical notes and drawings, and samples of telegraph tapes and disks. There is also one scrapbook (Cat. 1178) containing clippings about political and cultural matters.

The following scrapbooks comprise this series: (1000 1000)

Cat. 11//	(1000-1000)
Cat. 1178	(1860-1879)
Cat. 1143	(1870-1875)
Cat. 1144	(1874-1878)
Cat. 1173	(1874)
Cat. 30,096	(1875)
Cat. 593	(1875-1877)
Cat. 1134	(1875-1879)
Cat. 1031	(1876-1878)
Cat. 1032	(1878)
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Scrapbooks consisting primarily of technical notes and drawings can be found in the Miscellaneous Shop and Laboratory Notebooks, Notebook Series.

A NOTE ON THE FILMING OF THE SCRAPBOOKS

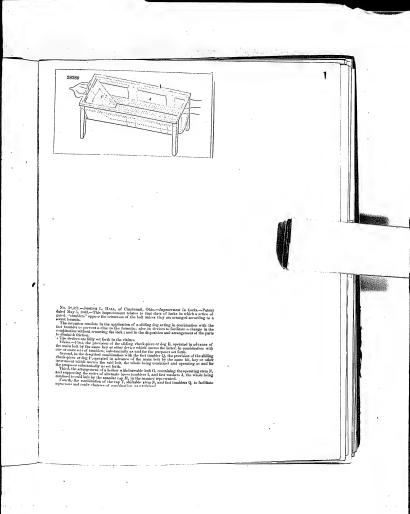
Although each scrapbook page is represented on the film, the contents of the acrapbook have no been filmed in their entirety. Many sersprosed pages contain multipage vendors' catalogues, circulars, and price lists or multipage articles from technical journals. To have filmed the clippings in their entirety would have required several times the present number of microfilm reals. Ordinarily only the cover or first page of catalogues, price lists, circulars, and journal articles has been filmed. However, catalogues and other material issued by Edison companies and articles dealing directly with Edison and his inventive or business activities have been filmed in their entirety.

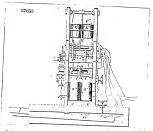
Scrapbook, Cat. 1177

This scrapbook cowers the period 1860–1868. It contains clippings of patent specifications and drawings from the annual reports of the patent commissioner. (Additional clippings for 1837–1839 can be found in Laboratory Scrapbook, Cat. 298, Notebook Series). Most of the clippings relate to telegraph devices and to various uses of electricity. There are also a few miscellaneous patents on such sublects as stypewriters; gas regulators; and abdominal supports. The book contains 320 numbered pages.

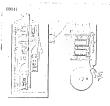
Blank pages not filmed: 316-320, and all even-numbered pages.

Missing pages: 5-6, 9-10, 15-16, 21-22, 27-28, 33-34, 39-40, 45-46, 51-52, 57-58, 63-64, 69-70, 101-102, 111-112, 121-122, 133-134, 143-144, 155-156, 167-168, 179-180, 189-190, 201-202, 213-214, 225-226, 237-238, 249-250, 261-262, 273-274, 285-286.





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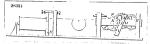


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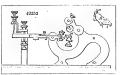
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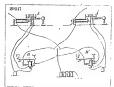


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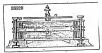
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specified.

I also claim combining the use of intribund steel cores in the electro-magnet of the induced current, with the use of soft rone cores in the electro-magnet of the primary current, substantially as and for the purpose specified.



No. 23-543.—Geomet W. Beamvette, of Gollago Paint, N. V.—Importance in Triesg. Corons by Directing—Theory that Angest 15; 28-54.—This invention reasons in the line heaving two conductive without a contract in the first being two conductive without a contract with the force and the other with the first of the other with the second to the other with the first of the other with the second to the other with the first of the other with the other wi



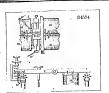
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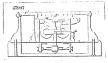
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Second, the use of one or more rings or recesses filled with shelke combined with the hard rubber neck of the electrophorus or the hard rubber support of the wire at the barner, substantially as above described.



No. 34.573.—O. It. Hieres, of Cherchank, Olio.—Impreement in Title-graph, Apparatus.—Passes thank Directs, 1862.—The semantion of the receiving angular home properties. The properties of the p

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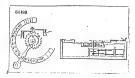


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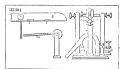
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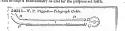


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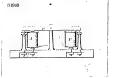
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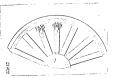
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No. B. 14.—Lamago, Wesser, Chillenin, Glies.—Bettersequite Partiel Inter-sort Anniel 18.—Comment of the Comment of the State Interna-tive Anniel 18.—Comment of the Comment of the Comment of Anniel Inter-taction with electromagners, which by mean of here transmiss, private upon the leg-cratic with electromagners, which by mean of here transmiss, private upon the leg-teral comment of the state of the Comment of the Comm



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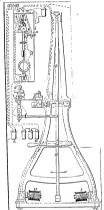


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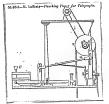


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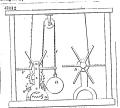
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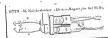
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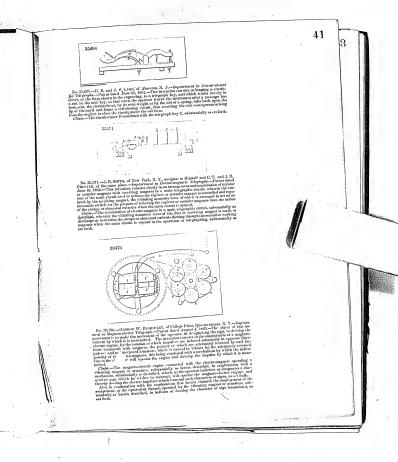
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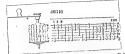
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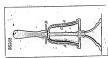


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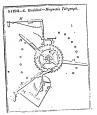
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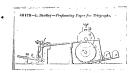
Nighth, a helix made up of sections composed of members when both the members and the relations are connected to and insulated from each other, substantially as set forth. ers and th e



No. 78-502.—HOMERT COUNCIDES, of Philadelphis, Ph.—Importance in Lighting Gas & Delivery—Vaccus taked blay [1], 18th.—The apparatus concluse of a modally fell field fixed production of the control of the instance claim include the production of the control of the instance claim include to the lumer deep control of the instance claim include to the lumer deep control of the instance claim include to the lumer deep control of the instance claim include to the lumer deep control of the lume



No. 5, 180.—Character Kitteriore, Norman, N. J.—Mocoole "Thyreps, Normalor to" 1805.—This adject of this invention is to improve the analytication in the transaction of messages. The completely will no adder of a fine directification of the control of the contr



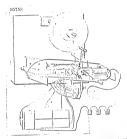
No. 6, 479.—LATRIET BRIGHT, seem City, N. I., seeigns to Microsita, LETTER, training and the product and the p



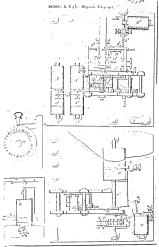
No. 19,612.—Hjourn Exacts, of Manastorch, Workbotter county, N. Y., a stigner for all the state of the formation, when the state of the



No. 35.-21.—CERRILES STOWIZE, of Converd, Muss, assigner to Hisself and W. M. HAVY, DRILLY of Schalasson, Manching Properties of the Converge of the Converge



No. 32.25.—[Arm: Harmer, J., of Huston, Mass—Inspirares & In Birth Clarks.— Property of the Company of the Comp



No. 93,5%—ROBERT BOYES, no lignor to binself and GUSEPPE TABLEMENT, N. Y.—Heltremagnetic Thetropa,—August 22, 185%—This invention does not admit of a bird description. The claim chiese the nature of the improvement. The claim chiese is the nature of the improvement. China—First, the alphabet disk A, in conditation with the recovering traversing paper symbol. Do all panel E, constructed and operating substantially us and for the purpose the

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No. 41,157,—JAMES ROLLAND, Combuduction, Venn.—Insulator for Telegraph Wirex.— January J. 1841.—The insulator is formed of terraceatis, entherways, or other regularity and the property of the test on and projections on the sides of the reception of the vitex, solutions of the Clein.—An insulator or bother made of terraceatis, entherways, or equivalent analysis or with the property of the property of the property of the vitex, solutionally as ref.

17918 - G. W. Beardslee --Coupling Wire.



No. 17,395.—41, W., BERTISTER, College Delait, Long Island, N. V.—Coupling Conducting Control by the Bondy low dilute of metal, which are placed for to face, and of health product, per though low dilute of metal, which are placed for to face, and of health public, and which is the second dilute of the low of the second dilute. However, and the second dilute of the low of

49812-F. F. A. Achard-Eleston-Magnetic II: julatur.



No. 49,843—PLENÇUS PERIORANIA AUDISTE ACHAIN, Paris, Pinnes—Hestro-arginit in galadors—Separaber C, 1875.—This investion rathes to an electroscapacito type-scale and such as the period of properties of the period of the period



No. 31,610—32. E. WARCOYT, assigned to W. H. HENTLER, of Buston, Muss.— Interpretation in Protect of Rective points: as in the employment of a solution of faced control proper sixty. Printers of the Computer of the Solution of the Computer of the Solution of the Computer of the Compute



No. 47,110.—Askard Jontsono, Leid Station, 112.—Lightning Condenter.—April 15, 1500.— The nature of lightning conductor companies by the claim and engraving.

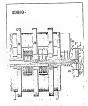
The station of lightning conductor componed is a timagenity, the lowerthy network skies, in combination with a constitution of a timagenity, extending party or wholy through the keeped the tempt of the state, embanatishly as and for the purpose invente see forth.



No. 45,641,—fracum: T. Pantry and Wiladaya S. Waltszu, Psilmdelpile, Penn.—d.p. flor other and connected by platfun wires, are placed writin a classed channels remaind for the floring platfun wires, are placed writin a classed channels remaind for the floring platfun of the floring platfun of the purp relation of the communication of the floring platfun of the platfun of the communication floring platfun of the platfun of the floring platfun of the pla



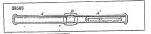
No. 44,880.—DAVID MUNOON, Indianapolis, Ind.—Lughtning Conductor.—November 1, 1841.—The invention consists to making the rold of copper and sites, or topper and galvanic loss in the two metals being into the role metals being into the consists being with consists of the consists of the



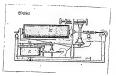
No. 69,560.—Hexay N. Haxra, at Bachannon, N. Y.—Improved Berler-Megarité deprentes.—Plotte dand beplentier 4, 1560.—The disease and ungeringe spirité proposition of the production of the produ



No. 30,560.—N. Buryan, of Lockport, N. Y.—Inquerement in Lightning Reb.—Patent dated November 6, 1810.—The chain mak engravings explain the nature of this invention. Chain.—The construction of lightning conductors, with parallel continuous artips or tubes of the continuous and the continuous artips or tubes of the continuous artips or tubes of the continuous artips or tubes of the continuous artips of the deciment of the continuous artips.

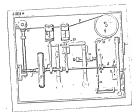


No. 9-6:61.—Romer Converges, of Pelisbighia, Pa.—Important in Lighting (in 2) Therefore—Better these highest their que, solve with a cagent shat of hand pulser making a single state in which a sunther condend that either single shat of hand pulser making a single state in which a sunther condend that either single single state of the state making a single state in which a sunther condend that either single state of the state state of the state of the state of the state of the state of year in the state takes some rosing. The lighting index is entirely intered by an involution, and which is the state of the state of the state of the state of year in the state which is the state of the state (Galler—Pote, a daulic electrospicus substantingly as above, the state of the



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No. 20 (265—1) not Private, a L. L. Labour, Miss.—Improvement in Trigorial Instruments— Desire dised Anne 21 (1988—1988). The More dised Anne 21 (1988—1989) and the continuous and arminers, a clock instrument and recomments and a resonance that of a continuous distances without the skill of a local Instrument and annexa for local continuous distances without the skill of a local Instrument and compensation, such a reasonable local configuration of the skill of a local Instrument and compensation, such a reasonable local configuration of the skill of a local Instrument and compensation of the skill of the skil



No. - REJIK.—ALEXANDER BANK, resignes to WILLIAM II. ALLEY, Now York, N. Y.—
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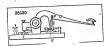
No. 20,612.—Pharmeter R. Brannestri, of College Point, Quenn creativ, N. Y.—der-berger and the College Point of College Point, Quenn creativ, N. Y.—der-pendent of the College Point of College Point of College Point of College designed to avail occurred proteint diffusion in the College Point of the conductors of the conductors of the conductors, as the complete point of the College Point of College Point o

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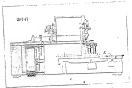
Claim.—Connecting the two conducting wires by a feeble conductor, substantially suche is configurated and placed in contact with or in close preximity to the pewder, substantially as as to ferth.



No. 20217.—WHILEY II, HENDRANN, of Brooklys, N. Y.—Improvement to Laping Telescript Color. Parent short January 3, 1820.—The sum removement constant in property seasons to the color of the state of th



No. 30,250.—ALEXANDER DANS of Now York, N. V., assigned to VILLAL III. LLLERS, and the subsection of the State of Northern Department in Key for Executive Telephone to the control of the subsection of the subse



No. 20,11.6—Fasser F. Reywara, of Word Jayme, N. Y. molegon in historif and G. E. Barrowen, of Marrowith, N. V. molegon for the fast and the fast an



No. 65-12—CURLES F. CARPETER, Providence, R. 1.—ILlestrosagenic Signatheters.
P. Denny S. 2.—Iri, ...—The nature of this invention is rejudent from the following a displace, and the control of the providence of the control of the c



No. 37,428.—Planten A. Hevy, or Boston, analogou to kinesti, Grenze, W., LANS, Watakan C. Hewy, and And York. D. 1997.—The claim and experience binguistic denset for the state of the control of the con



No.20,021—Marsier Vranara, of New York, N. V.—drapered Bieto-Meparis Infer-porate dated Gender 2, 1800.—The other and regarding a spilina the name of the invest-ional control of the co



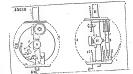
No. 95.233.—Hursatris Charles Viso, of Paris, Pranc.—Impreed Mythol of Lifting dampherly Refettings—Hard and June 19, 1805.—The chain and regiving explain the mann of this terminal, single fit, beyond arrangement or mean profiled wherely 1 an emabled has as the positive devireity contained in the same profiled wherely 1 and the contained of the positive devireity contained in the same profiled wherely 1 and 100 profiled where the positive devireity remained in the same remained and the profiled profiled profiled where a contained available for planning pragons, and of the Reference of the contained available for planning pragons, and of the Reference of the contained available for the profiled are the profiled at the for similaring sea into the acrossis, in the summer of the the proprise of Coloria.



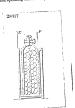
No. 28,023.—Lores Evenzon and Essere Parasama Raxves, of Puris, Prance.—Improved Institute for Electrostes—Parista thoid May IX, 1803.—The claim and expansing explain the state of "III statement," and in the state of "III statement, consisting of an ensumed in one, lawring a linear of glass permanently consented within it mad it "almped movement, as the nines at our domestic moving beyond the interior of the linear permanently consented in territor of the linear permanently consented in territor of the linear permanently object in the interior of the linear permanently object the interior of the linear permanently object the interior of the linear permanently object the structure of the state of th



No. 57,200.—Hexay A. Serricera, of lipicini, Comm., analgese to P. S. Danaswami Wit-Litta Warrate, of and Heiselin —Ingress of Thermatid.—Burst state Debrumy For This invention places in June 1997.—The This invention of the control of the proper till invention of the place of the property of the property of the property of the property metallican collapsed of two different compositions, secured spectfur, the first complete metallican collapsed of two different compositions, secured spectfur, the first place of the which is it receptor, cleaning a patient to indicate spear, at that twainties of the tempera-ture of the property of the bottom or upon the end of the ring-shaped metallic formal. I shame the employment of the bottom or upon the end of the ring-shaped metallic



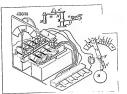
No. Ling Ha.—SNIPER. ILBRITENT. Jr., New York, N. Y.—Lighting that hy Distriction— the chamber, and within the case is a finite or set of meth, which a report to the chamber, and within the case is a finite or set of meth, which are provided provided to the chamber of the cha



No. 26/217.—Marwire, Vancard and Now York, N.Y.—Improvements are Generating of Paths fined Burnery glunner Institute, May 15, 1022.—This invention is not interesting to me an unit of Institute, and institute of Institute, and in the Institute of Institute, parts and in the waster of Institute, parts and in the waster of Institute, parts and in the waster of Institute, and Institute, and Institute of Institute, and Institute of Institute, and Institute of Institute, and Institute, a

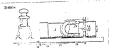


No. 14,118—firmum W. S. P. II and COLULEY Y. HEND. Cincinnated Ohio.—Magnetic Mass of Gaster.—September 1. S. P. II and COLULEY Y. HEND. Cincinnated Ohio.—Magnetic Mass of Gaster.—September 1. S. P. II and Columbia of this increment in the Policy columbia of the National Columbia of the Policy Columbia of the Columbi

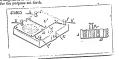


No. 44,503.—Jours Blatwire, Washington, B. G.—Megarité Assonations,—July 93, 1961.—Hoferoure is the specification and distribuye will be increasing for an universality of this investing, before the stress of the first investing of the first of simplest, and the first investing the second of the first investing the control and their stress position.

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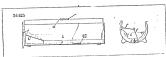
No. 20,656.—J cannot Eurera, of New Yarl, N. Y.—Inspected Dietric-Mignitic department could be seen to the control of the relation of white the latter of an electromagnetis in monomial part of the control posts or statis, and with the leafer of an electromagnetis manner that the current part of the control of the Tan inventor steps, it does clerk-control of the wire of the control of the contr



No. 4,12,5.—afferment A_c Strantes. Berkester, N. V., nodeme to kines of and 12,2311 interaction consists in the sea of charmon, portacting for Theorythe,—almost 1, 104.—This interaction consists in the sea of charmon, portacting disas, pushed on almost rect equivalent advantages, between the soft and greatest consistent of the table product of the consist of the season of



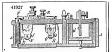
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No. 11.425—M. W. HOUSE, of Ulev-bank, Olios—Insportment in Electric Birkle—Plaint detail February In India—A interval tendent between the Company In India—A interval tendent tenter. On this hookes the potential tenter of the Company India of the India o



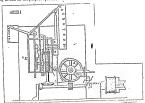
No. 4.5.21.—SAMUER (IMBONER, Jr. New York, N. Y.—Jajakine the key Extensions—No. 4.5.21.—SAMUER (IMBONER, Jr. New York, N. Y.—Jajakine the key Extensions—Normal varies or points perfectly inempted from the gracionary, as the wires were liable to be trued presented against the interior. This is equally presented against parking the byte of the general presented against the interior. This is equally presented upon a making the byte of the general presentation of the presentation of



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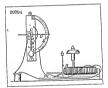
No. 21,820—JOHN MORRAN, A. T. JAY, ENDEND FORMARDS, and JOSEPH TRATON, of Lection, Polynacia—Importances in Telegrapia; Collates—Patres should spril 1, 1820—The spatial coil of vire in terminols by a covering of regular could vire in regular likes, resident likes, resident to the contract of the purposed proceeding the contract of the contract of the purposed proceeding contract of the contract of the contract relation is a contract of the contract of the contract relation is a contract of the contract of the contract relation is a contract of the cont



No. 14.521.—Citatities Remains, Seemis, N. I.—Frienders Triergeles-Newmann and American State of the American State of the American State of the American State of the American State of America



No. 41,820—Janu S. (Greoners, Riberheid, Digitad, and WILLIAM Stutents, Idrephal, Default—Robins, Markey Internation to Lond Americas—Mark S. 1881; part of the State of the S



No. 28,731.—Housers Bortat, of Datest, Alek—Imporement in Transportant, Alexandrad Amelian State of the Amelian Control of Education Control of the Amelian Control of Education Control of Ed



No. 20,223.—Annay Pantin of pringisiols, Muse—inspersement in Dirition is consecuted for Middle Perspect.—See Midd



No. 29,862.—CHARLES T. CHESTER, of New York, N. Y.—Improvement in Electro-Mag-nets.—Patent dated September 4, 1893.—The claim and engravings explain the nature of this

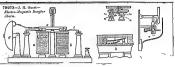
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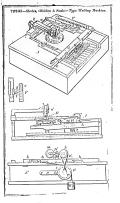
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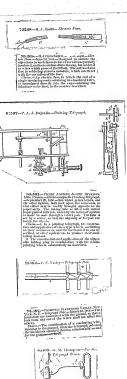


So, B. Hr.—WILLIAM, I. ALLYS, Hasten, Massembergher, W. H. Allys, Hasten, M. Allys, Hasten, M. H. Allys, H. A. Frigurie, L. F., B. P. Martinesen, "High principle sold, and heep long or constructed The increase and the long of construction of the sold of the



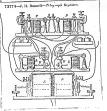
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S2.081,-Hissay Patonia, Evansion, III.-Vidtole Battery,-October 13, Isse,-The positive and

negative channels are in connected by means of wires, which are consorted and posteried from the corrective method the solution used in noiselecturing the cloth as to provent deposits onesels connections, Chrisa.—For combination of the potter has the positive and negative respective, and the poporative and negative respective, and prepared in the operation in the same run for the purposes specified,



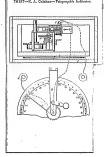
S0.-163.— ALEXANDER JOHN B. Dg MORAT, Philadriphia, Pa.—Electro-Hayartte Espina.—July 25, 1866.—Permanent and electro-magnets are so.

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257 David. B. Firman—Electric Commission

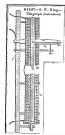


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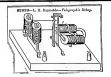


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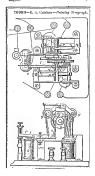
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N2,638,—Lawes H. Beryserus, Goshen, N. Y.— Self-adjusting Telegraphic Edity.—September 32, Clain.—The Subhir-besters sumpni, or two-bestmegarts, placed in a helix or helicox, with their like poles mere ord, where some other is on that their conplex mere ord, where some other is that their cryatism will remarked, or healty remirrant, the attaclant of armstery of common rady to its our



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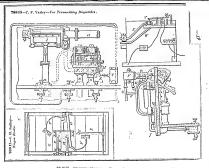
2.1.106 — DAVID MUNON, Indianagelle, Indi-Lebstate, Rod.—February 11, 1845.—The extracttions are so better that the interveness held indicates by conflict attention that the properties of the following stemp by which they are conserved of the binding stemp by which they are conserved of the binding stemp by which they are conserved under of their Childs.—It. The lightling conductor, under of their properties of the conserved of the control of the properties of the control of



S-1-210 — Davin Mussee, Imhembolis, Indulaçatada Rada—Savander II, 1862—The exclusion are highly over ruch exter at their onles, and ascured ingerther by outing into the edges to form ours, which not best of the edges to form ours, which not best of the edges to form ours, which not best of the edges to form ours, which not best of the edges of the feet conducting the mine down to the ground. Chain, —The lighting conductor, composed of the exclusion A, feeted and sound ingelier as and for the purpose out forth.



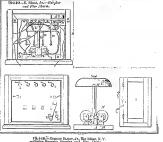
23.487.—JEAN LECTEN ARMEN, Bordom Prance, Technic following the Control of the Manager and the Control of the C



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28,407, — WILLAM H. WAYNEYS, Hortford, Cumo-Electra Michay Promac-duncy, 1985. — Two June Johnston Magnethy within an oligicity server that type for opening and closing the same; for holing the opening and closing the same; for holing the control of the control of the control of the opening of the control of the control of the stantially as and for the purposes herein shown and decertibed.

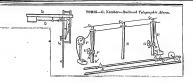


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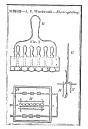
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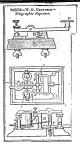


200.11 A.-C. SHIEN, N. ANTHERS, SORDON, Ollas, A. M. ANTHERS, S. A. C. SHIEN, S. A. C. SHIEN, S. C. SHIEN, S.



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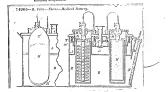
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80.402.—WILLIAM GATES, New Harves, Commonstages to Indused untal Territoria, W. Houses, was decided to the common of the common



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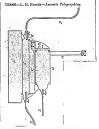
79,020.—Charactes Wintermean and Windlaw Kray, Chrimuth, Ohio.—Electrical Buth.—July 14, 10%.—The object in extensing the air is to induce correcting confidence are in a characteristic to the lumin body while the latter is for rates.



The 221 c—W. J. Rim, Breadin, N. Y.—Electro-Singuistic Logic—Applit I, 1982. The notionized in International Applit I, 1982. The notionized intention by the spinal wings upon in. The spinal-recentificate in this in neglinities for the making pathway electric upon in evenion number of common of the new particles of the common operation in explaining containing. (Aria,—The log provided with a heaving for closing and I reviving in a few referred results, substantially and and involving the electric results, substantially and international control of the properties of the prolational control of the properties of the properties of the dispert, the safe reporting in particular and properties of the dispert, the safe reporting in particular and properties of the properties of the properties of the properties of the protation of the properties of the properties of the protation of the properties of the properties of the protation of the properties of the properties of the protation of the properties of the properties of the protation of the properties of the properties of the protation of the properties of the properties of the properties of the protation of the properties of the properties of the properties of the protation of the properties of the properties of the properties of the protation of the properties of the properties of the properties of the protation of the properties of the properties of the properties of the protation of the properties of the p

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75,886.—Lincillor H. Eviliur, New Officers, La.—Leonale Telegraphing.—March St, 1868.—Improvement on his jutest, November 17, 1863. Results mystered at one and of the relaxed are

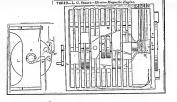
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77.72B.—William Hall. Dehreger, Ioura— Leader Roll—May 12, 10cl.—A colled attestille step under Roll—May 12, 10cl.—A colled attestille step under Rollmans countried epilleder, constructed of sheet metal wherein this steer of which the active forming the origin continued the active forming the origin the step of the steel of the steel of the shall be constructed error and loss when or not, when shall be constructed error and loss when the steel of the shall be constructed error and loss when the steel of the shall be constructed error and loss when the steel of the stee



28,6119.—L. C. Struart, New York, N. Y. lector-liquestic Empire,—limpt, 2, 1866.—The secndary current induced by withdrawing the observing record from one set of integrate is utilized by the fragments. The cult of the suspendence of supplied with the observed through the surclaim of the dilabtic modern of the supplied with the conductors, each the dilab being made of three distinct, insulated

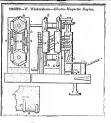
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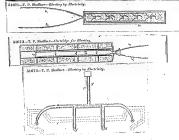


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No. 51,571,—T. P. SHAFFNER, Loulsville, Ky.—Hiering by Electricity,—December 19, 1285.—In this invention the main wire, which pass to the mine or cutricy, are connected market in the first of the first, as matter of which are placed in a diright charge of explosive materials.

Gain.—The use of beanch elevative in separate futer, with a single charge of explosive materials, the purpose of similarizations ignified on the same at several spoints, as red forth. No. 31.372—T. P. STAYPEZEL, Lordwille, Ky.—Garridge, Propulse [24], 886.3—In this brenchion be cartridge in main of or compressed greater, proceeding 19, 186.3—In this brenchion be cartridge in main of compressed greater, provides proceeding 19, 186.3—In this brenching 19, 186.3—In

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No. 54.74.—T. P. Statavezun, Lunkerija, Kr.—Blasting by Electricity.—December 19. 1856.—This investage will be understood from the chains. Clotin.—The cumbination of the unine circuit and the branch circuit, the latter being cornect in the contract points for simulations registrate, and bring of sev considerity than the character in the virtual points for simulations registrate, and bring of sev considerity than the terminate sufficiently to phote the different edglest under equally favorable conditions for simulations: explosion, substantially and contribut.



No. 4150—Journey Contains, "Histologica, Prans-International for Liebting that he interface, "Galler Seed," belt a model and this gas larger for the propose of lighting for the larger larger



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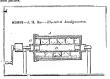




No. 39,217.—Journa Hall, of Brooklyn, N. Y.—Improvement in Galvanic Plates for Mobiles to Deliver the model Orobor's [1,020...-170] to claim and suggravings expland the nature of this Claim—The galanic fortal plate a lattery, formed of the sections a $b \in d$, hinged or jointed together in the manner and for the purposes specified.



No. 44.417.—AMIS HARMEN, Ir., and B. F. ROMANIN, Botton, Mara.—Herteneggate Forderine—Learney L. Sell.—This hisroridum country principally in the magnitude Forderine—Learney L. Sell.—This hisroridum country principally in the magnitude of the sell of the sel

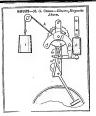


\$3,004.—Juno H. Bar, Syramov, N. Y.—Rice trial Austrantics.—Optoby B. 1995.—Designed as an importance of the content of Polanay 5, 1997.—Z. District of the Colonia of the 1997.—Z. District of the New York, and the liner price of which are sentred rine beaters. By intro-

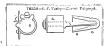
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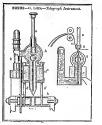
No. 39,146.—CHARLES T. CHENTER, of New York, N. Y.—Improved Carbon Plates for Galeronic Interior.—Viewed third April 14, 1828.—The investion consists in inhedding a Cition.—In combination with a review desired in a galaximic lastlery, gold or platfarms commands inhedded in the carbon during the process of manufacture of the carbon element, substantially as described.



No. 1922.—Motors G. C. Chary. Noveline, Marsfelders-Marquel Barriers, Sangase H. Hart Colmleger and Company of the Company of the Colciol principles architecture. He for the Colciol principles of the Colleger and Colsiol principles of the Colleger and Colgorithm (Colleger and Colleger and Colleger and Action Colleger and Colleger and Colleger and Action Colleger and Colleger and Colleger and Colleger and Action Colleger and Colleger and Colleger and Colleger and Action Colleger and Action Colleger and Colleger and Colleger and Colleger and Action Colleger and Colleg



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SO.203—Genher Littin, Hubben Gir, N. J.— Telegroph Internaced.—July 28, 1962.—The periodical of either a heat equilable of being magnetized by fairerion, or eace or more permanent integrate, and a marking point, and is in pieced in a telegraph instru-

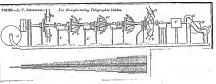
ment is such relation to a cell or cells that the clus-ing and breaking of an electric current through the cell, or the change of direction of actualt, will cause the per to whence and make surely upon paper. China.—1. The combination of a per with a res-

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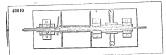
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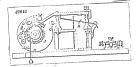
No. 66,012.—10. II. SOUTHWOODER, New York, N. V., assigner to kinself, BLASE Lon-Blann, and Chantae's Yannes, Walter Falson, N. V., re-Thergraph Colde.—Pelmany '26, and the colder of applies of guntary-colder, laxivity place or pelmeters, the sevent whom being placed in the angine formed by wings and the souls budy of the gentle-perfect places, and there lengther Chines—Chonden and sevential colder of the colder of the colder of the colder of the Chines—Chonden and sevential possess, and schemical colder of the co



Ph.196.—Addition Paterty Alammany, Duris, France-Mandaey for Manufestering Telegraphic College and the Company of the Company



No. 42,000—5. A. Batter, Bookshyn, N. Y. and Jutter J. Sermen, Gerlaum, Mo.—Morting for Corring (Fine for Thirguples—Incorrect control of the Corring of Corring (Fine for Thirguples—Incorrecting or conscipulation in England December of the Propagate of the Corring of Correct of Correct



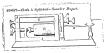
No. 44,829.—SAMPER P. DAY, Ballston Spa, X. Y.—Detro-Magnetic Trigraph.—May 21, 1cd.—This invention consists in depending with the best for ellipse recording to the control of the contro







10.7 Sec.—Brown Carly, Christian, Ghia-Pallerger, Agrantine and H. In the "This Institute in Property of the Pallerger, and the



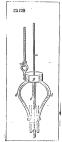
No. 40,857.—JAMPS J., CLARK and HENRY SPIATIONEY, New York, N. 7.—Smooth Mag. and —Stephenber II, which was the second controlled the second produced by the blood of the humanes of the humanes of the burner to the second controlled the second produced by the blood of the humanes second to the second controlled the second produced by the blood of the second controlled to the second



No. 55 (2011—2) we'de You', or Stanford, Cross,—imported Medial of femaleting and fup-porting Lighting Belov—Belonic about April 211, 1852—17th investion consists in making the instalator is to rea more extenta material experies around the role members, without the instalator is to rea more extenta material experies around the role manders; without the instalator is to rea more extenta material experies around the role and sold in two or more present, hinged inceptive has a numer to to show of its design exper-sable in two or more present, hinged inceptive has a numer not to show of its design exper-sable in two or more present, hinged inceptive has a numer not not show of its design exper-sable in the contract of the short of the tracking curvature ranges, it bleads ingular in insulator, Clifforc—The insulator formed in two societies of the contract of the cont



No. 34,623.—I., O. COLVES and G. H. CARDOZIN, of Philadelphia, Pa.—Insperenset in Toltypologic by Acid-2—better detail Markin II, 1622.—The invention councils in occument of the College of the College



No. 15.122.—THOMAS SHAW, of Philadelphia, Pin., assignor to Himself and PHILIF St. J. Courter, of the same places.—Improvement in Laging Telegraphic Colors—Hunter thated phyll 25, 1027.—Attached to the relax becumered with the vasual for a fixture of eather than 150 miles and the properties of the phylogenesis of the constitute of a ring to which are stateded three aptings supporting that block of master, which chapt the subble to light as to extent folicion, and that form a support of the control of the phylogenesis of

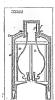
port.
This supporting device prevents the weight of the cable from clutching the conducting I'm supporting one operation of the telegraphic cubic white paying out by means of an additional cubic, when connected with friction cinteless, as described.



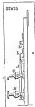
No. 35, 166 — H. W. HUNTER, of New York, N. Y.—Improveness in funguatic Computer.

Patent shared May G. 1986. — The nature of this invectation constant in the application to precise compressor of a lossific computer out in sharp to compute out the contraction of the contraction of the contraction of the massest sectrodes in the claim, enabled as it is because in sight evidence articles of the massest sectrodes in the claim, enabled as the source in sightly distributed articles.

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No. 55.732—J. W. Musuur and W. H. Ellator, of Platidoup, N. Y.—Isporresent in Leatures join Merice Wifergraphs—Neute double May 30, 1852—This Invention resided in the neutrons of several planesed difference who will be subject and set several planesed difference who will be subject as the several planesed difference who will be subject to the several planesed difference who will be subject to the several planesed difference who will be subject to the several planese when the several planese who will be subject to the several planese who will be subject to the several planese when the several planesed with the



No. 21,2026—MAXIMUM Book of Brooklyn, N. Y.—Improvement in Fire-therm and Maximum Book of Brooklyn, N. Y.—Improvement in Fire-therm and a composal safey of two different models to complete or color of the safe of the safe of the composition of the color of the safe of the color of the color

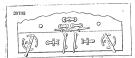


No. 27.211.—CHEVALEE (LATINE) DISCULL, of Million, Indy—Importants in Differentiary Telegraph.—Places deaded almost dead of the control of th or conducting WIPO, Within continuous with two varies of the along, considering, mediatile results of the conductors, arranged anothy close together, but installed from each state, and with a manable platform or platforms early the resulted by the abundanting, and the cloud-cally popurated paper on which the image is to be produced, the whole operating substantially as better specifies.

No. 37,332.



No. 19.673.— Towers A. Man, of Gainstern, III.—Inspersessed in Andrewik Batteriers.
Pount I mend August 19, 1981, uncleased August 19, 1982. The two relates outpiled for offcomplete the obstance of the Battery attack profession, and the state of the Battery attack profession, and the state of the Battery attack profession, and the state of the Battery attack profession and the state of the Battery attack profession and the Battery attack profession attack profession and the Battery attack profession attack



"No. 19, 723.—MARK W. HOEST, of Chevined, Olio,—Importants in Recorded Applications of Electricity,—Island stated Suplember 1, Machine 19, the separation reliminary and induced current survey. In the separation reliminary and induced current survey, in the second state of the same of the same of experiment effects within the primary current is primary current as a primary cu

showd interrupted current, the point of nutroconcess are suggested to the same or illiferent intensities upon the extensive lives, in a meragement of two believes of the same or illiferent intensities upon the same stand, and so commercing them that a primary interruption current in the same and an industric current in the same and a simple of the same and shows a quality of primary current is being most law of the same and shows a Q Q' while the primary current is being most law of the same and the same and shows a Q Q' while the primary current is being most law of the induced to that of the primary interrupt of priving the offent scales of 'the induced to that of the primary current is being the same and the

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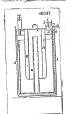
Third, the pole changers when placed in the circuit at any point between the helit and the electrodes, and operating as and for the purpose specified.
Fourth, the current directors for the purpose of conveniently localizing the currents assumed in the purpose of conveniently localizing the currents, substantially as and for the purpose herein set forth.



Yo. 65-272.— J. D. Liver, Cleveland, Obto.— Lightning-that Joints— October 10, 1845.—
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No. 60,328—N. Jr. Shirrin, Clevichani, Ohio.—Lightning and John.—Ohior 10, 1853.— In the proper size to fix employ in the lower of the solver toda, and when that sweeping the low fixed proper size to fix enoughly in the lower of the solver toda, and when that savegal and limited, a surgical size of the size of the solver toda, and when that savegal and limited, and the size of the size



No. 40,027 — Howers, J. Pancera, of Glasseys, III., antiquer to Huand Good E. W. Howard, No. Guideling Cast Cast Good Good Cast Good Cas

so may not a, secutiantally as and for the purpose herein set forth.

Second, the stud i insulating seculi j, and spring k, applied in combination with the material and set of the cay a b s, or its equivalent, substantially as and for purpose herein specified.

No. 40,539.-

No. 29,933.—Davin Woovern, of Seymour, Conn.—Improvement in Lightning Rods.—Parent dated September 4, 1860.—The claim and engravings explain the nature of this inven-The inventor says: I claim, firm, firmly securing together the earls of the rod A, and the sleere B, by means of the grooves c c, as described.

Second. I claim the troble jointed piece P, when made out of shreet metal, substantially as I described.



No. 40.031.—CHARLES T. CHESTER, of New York, N. Y.—Isoposesses in Dist Telegraph.—Pulses stated October 30, 1001.—The invention consists at a circular position of the product of the control of the cont

Is settented, and a ladescoverhed windry lie uniform notes in accretion, measurability to declined, the condition of the necession of all independent of the condition of the necession of the ladescoverhed, missessically to the receiverheave control of the condition of the necession of the condition of the condi





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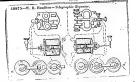
No. 47,910.—Monrie G. Paratriri, Selson, Mass., and Gromer F. Millierz, Riston, Mass.—Aria Tires for Thégraphe.—May 20, 1826.—The nature of this invention is explained Carlos.—Are not are article of "manufactions a telegraph with control of the purpose of strength with a core or curver of from or steel, the wire being made by drawing a compound but of the two materials.

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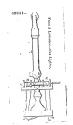
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No. 46.600.—Altered A. Carini, No. 7 year, N. V.—Bertering thereof for Triangesphero-Merch 7, 1965.—This investion resisted in the substitution for neutron of the strength of marketing which privilege conglemed edge, by which is also assult a produced by a very Edgine—The new-triang which, with conglement edge, for combination with a subsequent Edgine—The new-triang which, with conglement edge, for combination with a subsequent for age of with neutron, applied in the names and for the purpose as harming inflammation.



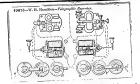
No. 43.575.—WHALM II, HAMILTON, Albany, N. Y.—Telegraph Depositor.—Suptamber 12, 1835.—The nature of this improvement is explained by the chain and expansing. Crisins.—The batteries I'R I'R' yapilied in combination with sensible A A', incurring magnets I. I', registering broves D I'R, and main wires o'N', substantially as and for the purpose of toffit.



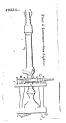
No. 69,554.—Howann J. Fritory and Gritoura A. Lawrances, Springfield, Mass.—Elec-rote for Lightern—August 8, 1961; anticipated July 24, 1862.—This investion consists to spe-red for Lightern—August 8, 1961; anticipated July 24, 1862.—This investion consists to spe-tral the alternomagnets. The proper of a carrier of correction with suitable range between statuses the solid later, these specialize fee lover and opening or closing the waven respectively by means of a philateneous with over the lay feed connected with the decent opening of the special properties of the special connected with the decent opening of the properties of the special connected with the decent opening of the posing through the preparation transversely to lie act, or like the properties of the special connected with the special position of the Special, the view D , as described, when used his conduction with the axial law G, or its quarteries, relaxation at electricies.



No. 43.65.—N. HINTYLK, Chingo, H.—Lighting Conductor—July 19, 1031.—134, invention consists in foreign the time project of glitting color of a setter of protocol, color, in combination with a timb, from whosee they project, and which little connectes with examination with a timb, from whosee they project, and when the connectes with examination of the contract of



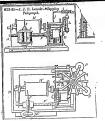
No. 49.75.—WHAMM H. HAMILTON, Albury, N. Y.—Telgraph Bypener.—Septomber 12, 1835.—The nature of this improvement is replained by the claim and engaging. Crisis.—The shatter of Pt 12′, applied in condition with summers A A' receiving magnets 1.17, registering leaves D 12′, and make witce a w., substitutibily as and for the purpose ext facility.



No. 49,261—Howann I. Pritore and Orionna A. Lawrance, Springfield, Mass.—Elecnia for Lightere—Sugard, Ferti studented slep 24, 1825.—This investion receists to aptern for the Lightere—Sugard, Ferti studented slep 24, 1825.—This investion receists to gentlement to the second student students of the second student students and the first students attacts the scale later, thus specialize the lover and opening or closing the value repositively we make of a plantament serve over the plant convented with the desired questing of the pursage of a plantament of the convented with the desired questing of the pursage of the price of the second students of the second students of the second pursage of the second students of the second students of the second students of the profiled to the second students of the second students of the second students of the Second, the value D. to described, when used its constitution with the statel law O, or its equivarient, attentionally a described.



No. 4,5,655...N. BITTEAN, Chicago, Bit—Lighting Conductor—July 19, 1951...—131, invention consists in forming the time project of glistimp only of a solvent of qualtum conductors with a turbo, from whereon they project, and which little connective this conductors with a turbo, from whereon they project, and which little connective this consistency. The conductors were the consistency of the conductors of the conductors whereon the conductors were consistent to the conductors of the conductors where the cases consistency in our piece with a salutar particular h and a continuous flat strip f A, all as herein described and for the purpose appellish.



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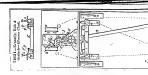
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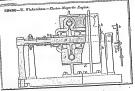
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48.1.45 — John Franker, Parago, N. 1965. — Header Crist, The Marsh of the John Crist, The prince is the description of the franker in the formation of the origin of a definite thin and in deep in a decription of the origin of the franker in the f



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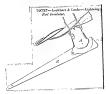
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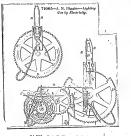
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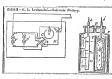
20,727.—T. J. LOURIART and JOSEAN LOCKE, PRIMITE, Phys.—Eight rates fived I resultates—Note and the primite property of the primite property of the to a galleningle throughout, which is secured to the rate of the same will be core of the visitor. Cleans.—The projection to the light-size of invitations of the projection to the light-size of invitation of the projection of the primite of the primite of vary other substantially the same, and which will preduce the introduct effect.



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65.14.54.—Geomet. Provin, Chebinati, Ohio-Danistore-Maj H, 1672.—As radigest chemier in the limitator receives the hook levels of the spiti of the property of the province of the property of the place, and may be constructed to praint in evanous, Physics—The chemicated limitator pretine F, in the property of the property of the property F, in the property of the property of the property of shouldered shank, the sold shank and chainer testing chemical the property of the



64.61.55—SETPUTS C. HERSHOE NAW, NOW YORK, N. 1—FERPUTS Annablest—April 33, 10-51 materials, N. 1—FERPUTS Annablest—April 33, 10-51 materials, restain periles of the size, and prevent the reciprose the current on the oxiside of the view over the ansection with the statistic perivace of the current section with the statistic-relation correlated for the purpose of the statistic perivace of the statistic perivace of the statistic perivace of the statistic perivace of the Second, the translation ploved i, the side 33, the haverted because the statistic perivace of the statistic perivace of the statistic perivace of the statistic perivace of the perivace of the statistic perivace of the statistic perivace of the large of the statistic perivace of the statistic perivace of the large of the statistic period of the statistic perivace of the large of the statistic period of the statist



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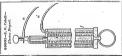


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61.774.—7. A. Kassuta, and N. Rackerssoupen, Chirage, III.—Léghtalog Custivator.—Jiny 14, 1867.— A flattened but with solar like. Christ.—A lighting recolorior, consisting of a ptrip of cupper, butting the plan a farmed solid therewill, an electric slower and therefiled.



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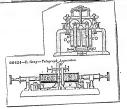
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63.40 (.— John S. Backers, New York, N. Y. Electron Magnetic Apparatus for Highestrian Vacation Magnetic Apparatus for Highestrian Vacation Magnetic Apparatus for Highestrian States which the gas optical by the control in the calculation of the state of the large state of the foreign of the state of the large state of the hardwards. As present the product of the hardwards of the magnetic few hardwards when the first distribution of the first state of the first state of the state of



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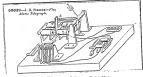
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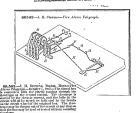
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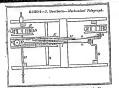
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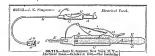


"0.4.10 — JAINE GRANDAR, FERTENEN, N. Y.—Telepapa Cicke, Neverther's, his — The decend of the check wright lesing graduated in a reverse position at some other hospic points of positions as some other hospic points of points as some other to the check of the check. The total housens is tripped by a wire operated by consection with the works of the check.

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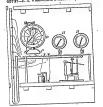
79, 4039.—Actaria C. Gantaria V. Boron, Moreafyillar 1746.—More 1740. The Marchia (realizagular places of gine and capter are southered together places of gine and capter are southered together capter in the foresting of the capter of the capter of capter in the foresting of the capter of th



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at the upper end of said furth, and the localized evaducting wire 3, between the electropheans and the perforated eva, so arranged as to receive the sparior sparks from the electropheans and conduct the same appeals to the end of the unisositated wires a stranged more the nipole O, of the perforated exp N, the which being arranged and operating in the man 69737-E. A. Wood-Electric Steam Gauge.



480, 2474 — MORNY, A. WORD, Diles, N. Y.—Effect from Group,—Acksler S. Hen,—The private basivey and lands, are connected to the private basivey and lands, are connected to the private post interested point of present upon the paper. Children—Graph, the trust present of paper, Children—Graph, the trust present of the accountcion of the paper of the private properties to the accountties connected with like point account-private connected with like point accounttable connected with like point account-private present of gain a galaxiest bester, subsentially as described for



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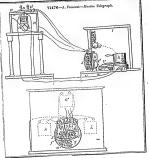
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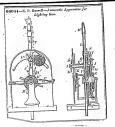




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66,50th.—Sauryz, Cesten, Salem, Ya.—Moja zezing Compass Neofles—ship for for a trickned jurce as a to lefting sittling to the control. The price as a to lefting sittling to the central. The secolated be tangenthred in introduced anotherant and, advantate and lefting spilled. As pall of unappear, under the arrangement for opening and elosing after the needs to be suppostized has been introduced, and the state of the suppost of the same introduced, and the suppost of the same introduced and the state of the suppost of the same introduced and the suppost of the same introduced and the suppost of the same introduced and the same interest and the same introduced and the same interest.



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65, 1900.—Vocarimor II, Foorrin, Heinel, Mille, Terlegraph (Spain, Rey, 2000. a 1921.—An indistinguish of special is placed about the low, distinguish of the special special about the low, distinguish of the control of the of the con



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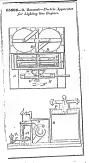
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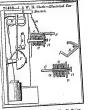
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70.052,—Joux L. Wartz, Barlington, Iosea—Telegraph Facchites—Lettoker 22, 1945.—The above of baseling materia, and the of the cup has a sever of baseling materia, and the large state of the cup in the cup of t



21.664—Minuter T. Woon, Hores, N. Y. and Stepres is himself-starte, loggers, and J. and Stepres is himself-starte, loggers, and J. and Stepres is himself-starte, loggers, and J. and Stepres and J. a



61.116.—Downam Dr. Loss Steuter, Chicago, Ill.
—Trenf jastferder for Telegraphy.—Intestry 8, 187.—
Explained by the china mil Brancow J. Limenson, G. Chicago, J. Lingson, G. China.—Internet proprietation, divided into sprease of divines an aminered as shears, said sprease between the consideration of the control of the



60.015.—Brutham Camor, Manuscarek, N., —Lasabier Hidder—Miy , 16rq antichtud June 12.187.—The black into whilet the holder shank is servered be overver with the, stass sensor are soldered to render it infestight. Chistos—The confidention of the block at metallic covering 4, and the builder A, for the particles and fetth.

> 66851—Kirsell & Blickenslerfer— Correspond Lightning Red.

diff.e84.—J. A. Kinseni, and N. Bitereressum rin, Librigo, Ill.—Corrupted Adolining Bode— July 16, 1886.—A flat, continuous strips of pure, cold rouled copper is corrugated lengitudinally to form a conductor. Chain.—A lightning conductor constitute of a continuous fini strip, corrugated longitudinally as hereth about and described.



the 1625—Santing Gaussen, Jr., New York, N.
"—Ispermin for fugiting for the Betteletter,
Virtury 10, 165.—The recipieseding law has grive;
Type as graved in provide the property of the prope

herceith by a single impute, asperfied. Second a sliding tur with an insulating support, unit furnished with keps adopted to a series of gas humors, for the purpose described.



60,033.— C. I. Seguence, Charpen, III.—More for the feet for the feet of the feet of the feet of the feet for the feet of the



20.4221.--1. M. Patterintà, New Harry, Conn., as., showing the property of the

Glein.—First, the armapement of the two-spirite J.K. in connection with their respective where upon the non-conducting place it is us to upon and closthe electric, substantially as set forth. Second, the armapement of the general sum who. G and the layer P combined with the squalites I is a as to use a unic close the circuit be the turning of the

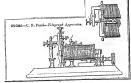


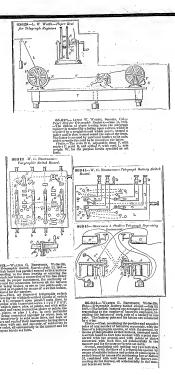
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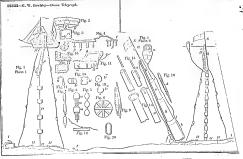
blocker can by arcens of a singh-tootheir wheel and suitable mechanism, such as described, or its equivalent, be moved too by a per in status of appearing the receiver at will, in the number of man fee the purposes and the state of the state of the state of the state Bootsal, the leaves Q or Q3, having an amantum at mo cost and a spring pand of or 31 at the other, the spring stop man's E.N.; the connecting roll had 30, and the feetball when it would be sufficient to the state and the contract when the state of the state of the state and the contract when the state of t

ranged together substantially and so as to operatons and for the purpose specified.

Third, the stop panis K IV, when erranged in conmortion with other one or both of the levers G IV, mail toulded wheal K, or their respective equivalent, so us to operate substantially in the manner and for the runner described.







No. 16 (22) — Given, W. Dever a terry. James on Which—offices Pridagraph.—Polaroney 15, 1953.—The accordance country in a relative of sections of sect



No. 50,218.— JAMON N. PHELEY, Broncklyn, N. Y., nedgaset to blauseif add Arosterii Rillativ, runnu place.— Teterpsyk Colles.— Getoler Sil, 1995; in attendated October Si, 1866.— Explained W. Hard Bern Harderstein and Silver Si



No. 54,800.—Part, 12 Bortazoté, Anteury, Binglaus of Belgium, assignar for Partz teinful is amount very dort patient of them, such as that compiled by a poposite in treating a few measure very dort patient of the measure. The production of the control of the property of the production of the control of the production of the control of the production of



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No. 67,761.—Bourser G. Puter, New York, N. Y.—Lighting Gus by Electricitys—Septient-Gritis—Party and the Market School of the Confedence of the Market School of the Mar



No. 61,600.—Ozumur O. Punitvixia, Brooklym, N. Y.—Entrited Longo.—April 3, 1865, unthainted March D. Punitvixia, Brooklym, N. Y.—Entrited Longo.—April 3, 1865, unthainted March D. 1866.—The designal voltage pile brooks in the latest of fraction of aginting Chine.—Pixel, and introduced in a form, or the lates of effective lenses, of a secondary pile which yell store up and prints particular until given of fraction into in time, a may be decided.—The contraction of the contraction of t



No. 5, 7841.— G_s , W. Satury, and S. C. Montary, Chrysland, and S. D. Custanax, New Johann, Ghao, "Thereposted First, define—Superhard Fit, 1916..." [Sham grades are arranged on opposite sides of the layer and of the axis, and set in conjunction; the custom prevails for element of the ball, and the arm is extended to vary in svery exceeding to the strength of G_s and G_s are the strength of G_s are the strength of G_s are the strength of G_s and G_s are the strength of G_s and



No. 15.481—Shattan Gaustone, Jr., New York, N. Y.—Turing Gua-Gula by Perrugames and the state of the areaster, which is alternately actually by destrict connection and
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No. 65, 2017—Lungs J. Chartt, Nacl. Under, N. Y., and HEMPA SPLITTORIY, New York, N. Y.— (sendang Firez of Individual Press), 1908.—The wire is finalisted by passing it through variable and then through dry psychological and approach collection sendanged parties for electro-responds and suspendo-clotic sendanged from who in Cicles.—Making platfor for electro-responds and suspendo-clotic sendanged from who in passing plays plays after the wire fine beam passed through a special point, after the wire fine beam passed through a special point, and the considerable collection of the property of the prope



No. 53,700.—JAMES STORY, Paris, Ky.—Telegraph Colle.—April 2, 1883.—The strain is taken from the insulated wires and horne by steel plates inserted in the cable, and wrapped with kemp and water-preof material.

with home and water-proof materials. Calcium.—First, instructioning and water provided with pro-claims.—First, instructioning nuclear delapsing a calcium with a steel plants, provided with pro-poses described.

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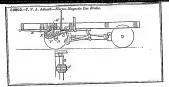


No. 56,886.—JOHN BLACKIE, New York, N. Y.—Electris Telegraph.—August 7, 1866.— By the application of the switch, two batteries or two cells of the same battery may be made

to neutralize-reck other, and thus reader them temporally happenaire and still permit an impulse to be communicated and application of a read of the communication and application of a read of the communication of the co



No. 66.411.—Saxture. Castrocci. 17. "Very Service. No. 7—Lyging Gos by Districting—the special content of the wink as the solar poly attached to un institution on the same and the special content of the special content of the special conducting with a special content of the special conducting content of the special conducting with a special content of the special conducting content of the special conduction of the specia



No. 25,900.—Processors Promessors Areason Teactors, Nat., Pante, "Estima Magnitude for Reals—Normalize Qui. 2021.—They more the shared from the exactles of the whork Diptima on which points are received in the acts instituted for the exactles of the whork Diptima on which points are received in the acts instituted for the processors as magnetic verification consistent on the exactles of the exactles of the exactles of the exactles of the exactle of the

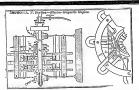


No. 00,663.—"P.AL. P. SHAPPNEH, Louisville, Ky.—Electric Fars.—Decomber 18, 1803.—
The worden head of the fune has a protecting recess for the fune competition and another
for the non-conducting connect which sarrounds the wires at their point of entrance into the
head. The local is enclosed in a flanged cylinder with a cup, and the fune chamber has a

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No. 52.003.—W.W.W.Apanzia, Hillsbory, Ohio.—Trigroud Institute.—Morb 13, 1895.— 12. The control of the control



No. 55,100.— The interiors of the production of the control of the



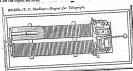
\$\tilde{K}_0.\$(A)\$ — At runn II. Exv., Newton, Matt.— Telegraph Interiester.— March 27. 1850.—
This inversion is designed as an idea great product of the state of the state of the state of the state. It is a state of the state of the state, in an option called the date of rand of any poper shape at the lower for the state, in an optio-consider below to state the state of the state, and not optio-consider below to state the state of the state, and not optio-consider below to state the state of the state, in considerable of the state of the state, in considerable of the state of the st



No. 53,427.—A. B. Eley, Nowton, Mass.—Telegraph Invalues.—March 27, 1893.—In this Invention this plus-book with its attachment is made by fitting tightly to the rubber alamin a disk of rubber projecting essentially at a right augit from the situation shows the book. Clein:.—As an article of manufacture, the rubber server covered plus-book, with rubber disk attackeds, and selectified.



No. [62,76].—W. W. SMITH, Clinciunati, Ohlo,—Triggeph Insulator,—February 20, 1826.—This increases will be understood by reference to the claim.
Crinin—Verming the insulating these wind the reference of continuous permanents of the continuous perma



No. 60,492.—Tat. P. SHAFFNEL Lumbrillo, Ny.—Magest for Telegraphs.—December 11, 1993; a metalated November 25, beth.—The horstonion cure is wound with emprevation of, any No. 22 ster, and with emprevation of, any No. 23 ster, and with emprevation of, any No. 23 ster. Each call it insulated it is made to the second of the s

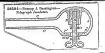
larger is connected with a unitary mass as manner of the mass of a correct induced by the <math>C(s) in .—blang an electro-magnet of the armsture by means of a correct induced by the C(s) in .—blang are electro-mass in the armsture by means of a correct induced by the C(s) in the C(s) in the C(s) in C(s) in



No. 68,100.—Jeanus Kinoza, New York, N. Y.—Jeapen Edicité, Aprimiter-Superturber II, 1900.—The control of the c



No. E4.89.—SAMMEN. T. Pirzan, St. Louin, Mo.—Telegraph, Colte.—March 17, 1895.— This Invention consists of a symbolic deastic cost, forming the cost of the activity invention to the cost of the cost

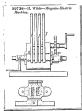


No. 28,694.—W. H. Burkar and J. D. Brassistivo, New York, X^{*}Y.—Tokeroyk Issaelors,—October 9, 1906.—The inversed cup has a shadow which is, as essential to be seen as the property of the p

with. Second, the non-conducting disk M m, fitted with springs P¹P², and shapped to be con-red in the base of the shell A_i substantially in the manner and for the purpose berein set

forth.

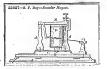
Third, the within-described combination and arrangement of the shell A II, confining material I, inverted cup O, and removable non-conducting disk M, as and for the purpose brein set forth.



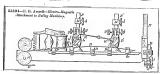
No. 65,278.—115x1V Witari, Masslenster, Deghned.—Stepasto-deririe Medino.—Nevous-segmental piece of rout line and two intermediate of lense of the same length, builty large engenetal piece of rout line and two intermediate of lense of the same length, builty large patter. A data belong in the optimistic secondary by the servicing atmost as rightly the large states conducting and some-conducting statistics expected by the ion segments. The constituents with the discrete-magnetic markets and the contract of the currents cannot be constituented with the discrete-magnetic markets on the contraction constituents. The constituents of the constituents and state of the constituents of the constituents of the constituents of an empote-observier and destruct-magnetic markets, countered and optiming districtably as and for the propose of forth.



No. 64 (202. 4). Il Frore and Account Part. Projection. Other—Induction Coll for Distri-nagents—Coloine 1, 1900.— Explained by the circumstant of the Colline Induction Colline Induction (Induction—Part.) making the ceil for this main or illered tireate of two wires of dissubline Second, belong the sail for the Induction corrects in two societies of pions coupled lengths of Second. belong the sail for the Induction corrects in two societies of shound coupled lengths of coil, the two societies for significant contributions of the Colline Induction Colline Induction (Induction Colline Induction Collin



No. 6.5.(27.—Sexum), F. Dav.; Indiana, N. Y.—Semoler Magneta—June 19, 1800.—The stricks reported as low counts are seen a mound shown a dright point supported as low counts are seen a mound shown a dright point supported as low counts are not in contrast to the labor point of the second strict and strict an



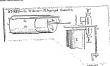
No. 65,001—20. D. AVEREZA, New York, N. Y.—Electrosequetic Attentions to Policy Robotics.—Jone 15, 1803.—The contact of the oligo of the pure with a guidar cubic charge of the oligo of the pure with a guidar cubic charge and me on the group counts with another pure liverage and the pure and pure some fine pure counts with another pure liverage and fine of the pure and fine of the pure another than the contacting of a martial lower and finery, with a piece a wind supple of the pure pure liverage and the pure liverage and th



No. 55,611—C. Jl. Ruma, Sandanky, Oline—Thyrraphic Reposter.—June 19, 1800.— By the described devices from currents are isoscaphic to action at the toccosory points to transmit the algent.
Clinica—The point of 1, with the spring M, past IX, and extension of the sever 2b, layound Clinica—The point of 2, with the spring M, past IX, and extension of the sever 2b, layound clinical, when adds extra power is obtained from the units current, which is tumerized as the time when models, substitutibly in the manner and for the purposes of the results of the time when models, abstitutibly in the manner and for the purpose of the contract of



No. 50.186.—HANN A. JOHES and JOHES HISTORY Alphology, Finghands—Welegraphic Signat—Goldwar St., 1988.—St. 1986.—St. 1986.—St.



No. 17,102.—ELISHA WH.SON, New Haven, Gona.—Telegroph Sounder.—August 7, 1865.—The rounding rules may be open at both cash, and the size is so diminished that the clothing of the operture to regulate the sound requires the minimum power of the electrocloting of the operator is regulated the sound requires the minimum power of the electronic property.

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No. 51,628.—GERROID G. PURKUYA, M. D. Bunchlyn, N. Y.—Higher Parameter 7.1.

No. 51,628.—GERROID G. PURKUYA, M. D. Bunchlyn, N. Y.—Higher Parameter 7.1.

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No. 12.41.—Pitatia Witzon, New Haven, Chim.—Sunding Thiggspha.—Pelemayé, 1988—This bireculain condict às centrolling the annulleng of the 'unpersonnelling landre the bireculain condict is centrolling the annulleng of the 'unpersonnelling landre the condition of the 'unpersonnelling condition condition, and the 'unpersonnelling condition to medicine, and condition to medicine, and the 'unpersonnelling condition to medicine condition to medicine and the 'unpersonnelling condition to embodied in instruction, expension, and the 'unpersonnelling condition to the 'unp



No. 164,084.—ALOTIN POIN PARK, Tony, N. Y.—Electro-chemical Telegraph.—August 7, 1808.—The paper strip, last before proving under the recording needle, is anosistened by commercial telegraph of the partial strip. The paper strip, last before proving the strip strip of the paper strip. The paper strip of the paper st



No. 65, 1282.— Marcolo Chiaco, Symptom. N. Y.— Flattels Telegraph.—Suprambed 1, 1261.— The cheeself and its architects of it can informate important statebalt. The pick has one south before the contrast of the contrast of



No. 50-771.—M. R. Palvarra, Salem, Mara, and G. P. Millarkex, Boston, Mara.—Lice Hire for This proplet.—Necessite Wi, 1936.—The respect wire of superior conductivity is strongchined by a room of lound or side of recent results summerly the conductivity of Claims—in combination with the incurrence of recent results summerly the conductivity wire a tol-fic claim, a region of the conductivity of the conductivity of the conductivity of the conductivity is properly with conductive recognitional with from or steel, and standard with the conductivity of the conducti



No. 55.517.—Perran A. SALVEYEN, New York, N.N.—Telegraph Colder—Jarach 4, 1855.—The autorus disk hyporthesis is described, by the risks.

The autorus disk hyporthesis is described, by the risks.

The autorus disks are presented in the risks are present consistency of a lotter formed of a plantial propose, assuming of a lotter formed of a plantial prince of the present prince of the plantial prince of the plant

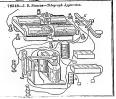


No. 65.012.—Jours A. HEVI, Boston, Mass, sodigare to himself and Gromer H. Haltzer, Hulland, Mass.—Electric Gas Sipe Onto—October Hi, 1816.—The roany perforable electra-ces between the principal control of the control of the principal electra-ture of the control of the control of the control of the principal electration of the control of the cont

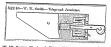


No. 51,561—A. B. 10.71, Batton, More—"Dispress femiliers.—Journey 9, 1801.—This manifes such as redshed in a land other play shick unsent to belongship.

cap is rested to the insulator play and its in-turned rise superantees the play. At the first cap is rested to the insulator play and its in-turned rise superantees the land. The form of a lass and seminosing in a langua or disk text insulat toward section of the first of a lass and seminosing in a langua or disk text insulat stream of the first of the fir the purpose described.







No. 10, 70%—W. W. SHITH. (Inclusing), Obio.—Triggraph handstor.—Marsh 17, 1890.— The two long state of the control of the cont



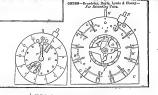
No. 40,231.—Tribhas Hata, Busion, Man.—Polinic Safers.—Pedrutary 7, 1865.—The nature of this invention will be ordered from the china term of this invention will be ordered from the china. The policy of the china term of the policy of the china term of the china term china lapping using concept of the control parts of discolution metals lapping using concept of the foot, and allowing the moisture of the foot and allowing the moisture of the foot of the foot of the foot of the china term of the policy.



No. Office—amorie Vinners, New York, N. Y.—Industries Call.—January 16, 1980.— Calles.—Plet, arranging the first hashade wire, which reads the first state of the contract of the callest and No. 52,055.-



No. 40 fort — LETTERTY BEAUTY, New York, N. Y.—Holioo for Request.—Angust.)
Files.—The transcriptor of the state of the st



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62:22486-31. RANNE TEXERS. Hoodelin, N. Yatastignoud for Archifor and Indianting Virturgalds in the Control of the Control of State and antiquode with a consequent of points of State and and products and their elsevir resident means the control products of the Control of the Control by telle or larvel lettings parts. In the Control of telle or larvel lettings parts.

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S3.031 s—SMPUR, C. Hinton, New York, N. V.

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SS-3610 m-ALTER C. GARRATT, Beston, Misselisis.—Heate is the of proposes.—Describer Vigillar and otto-feed in patter by a thread to a decference of the otto-feed in the by a thread to a decference of the control of the otto-feed in the feed of the otto-feed in the best of the ottofeed of the otto-feed in the otto-feed Galax—An electro-feed place is a decided, and control of the otto-feed in the otto-feed, and reads where, and from the born, as described, and reads where, and from the born, as described, and all irranged upon it decided source-outsirely lever, as and for the purposes described in this special extens.

"affect-opiniting and Patient Stretz,"—Smooth 1986, and Patient Stretz, "Smooth 1986, and excellent stretz of the stretz of the

28, 125.—WILLIAM PERRENA, Lembra, and the franciscus TANNE, Possyll Seguid.—Materials for A franciscus TANNE, Possyll Seguid.—Materials for A franciscus TANNE, Possyll Seguid.—May 10, 1858.—The subject and persyll Consequence May 10, 1858.—The subject and partialism are added by a settling reservement and applicables are added by a settling reservement and applicables, with Intellectually, guidant and the subject of the su

741, finds—Convext. Fleet were Native. New Fide Control of the Con

No. 23,700.—16. It, Compress, of Novi Theore, Comp.—depression is described. Total region Higher, a United Marchael 19, 12,101.—The investment could be independent Total region in the law to be used to be booker from a limit with at little and the copiest region of the booker from a limit with at little and the copiest region of the law of law of the law of law of law of the law of law

No. 30 (Sol.—) Paramet S. Dietaki, of Jourge City, N. J.—Impercental & Schmerker (Merc.—Patters beard Systemetr 18, 1985; antichted Oblices 16, 1882.—A cassing of bankling and potential reason parameters in all of over the central wine or where; this is not produced by the control wine or where; the les covered patterns of the control wine or where it has been controlled by the control wine of the contr

No. 31/422.—J. N. Paverzi, of New York, N. Y.—Improved Method of Jointing Triggraph Communications and March In 1801.—The object of this invention, as set forth in the last position of the property of the set of the property of the embourted or any states. In the joint, "In 1801.—In 1801.—The property of the property

No. 31,05...—Manurer Vincens, of Nor York, N. V.—Improvement is lightly for the disting Galaxiest Institute—Vascult and Market II, 1982.—The shwateger schimed for this fluid over sintle und as on absence of unphomatic does, less lightly to health, greater commy, Carless.—The population and phosphoton of the fill of the only probable hasteries, in the place of initiate and, composed of proposal or of the fill of the only probable hasteries, in the place of initiate and, composed of proposal or of the comment of the fill of the only probable hasteries, in the place of initiate and, composed of proposal or designation of the fill of the other comments of the fill of the other comments of the comm

No. 27,770.—Jean M. Havenetaun, of Combridge, Mass.—Improvement in Compounds for Institute Triggraph First.—Patient dated April 10, 1850.—The claim explains the nature of Circlas.—A topic property of the Compound of Circlas.—A topic with a compound volutione, composed of pulserized allox, plans, or other non-conducting material, mixed with Institute Triggraph with a compound of pulserized allox, plans, or other non-conducting material, mixed with Institute Triggraph Compound (Circlas, Carlos Compounds) and Compound (Circlas, Carlos Compounds) and Compounds (Circlas, Carlos Compounds) and Carlos (Circlas, Carlos Carlos Compounds) and Carlos (Circlas, Carlos Carlos Carlos Carlos Carlos Carlos Carlos Carlos (Circlas, Carlos Carlos Carlos Carlos Carlos Carlos Carlos (Circlas, Carlos Carlos Carlos Carlos Carlos Carlos Carlos Carlos (Circlas, Carlos Carlos Carlos Carlos Carlos Carlos Carlos (Circlas, Carlos Carlos Carlos Carlos Carlos Carlos Carlos Carlos (Circlas, Carlos (Circlas Carlos Carl

No. 3122—3430000. Victoriorous at New York, N. Y.—Improved Apparatus for desister fields of tribined Robotstand and the State of the St

No. 43-100—CUTTO CON Visabligation, D. C.—Magnetic Nicolitecheroster.—June 14, 1818.—This show to contain N. Nicolitecheroster. June 14, 1818.—This show to contain N. Nicolitecheroster. June 14, the inner and of this proves is a fatural pole mode with a given to the available to real in. North the inner and of this proves is a fatural pole mode with 18 very at least the last better than 18, with the solite of the containing the containing the solite of the last show with 18 very at the last show that the containing the contai

B-4192.—FILEMEN T. REIKKER, Chhappe, III.— ind far Exciling distress Chesias.—I small, 1992, in fall include water, subjects and, vineger, soll; and is caughtyed to saturate the financi of littles of a pertained patiently chain, whereast the inter-of the patient patients chain, whereast the inter-of the state patients. The state of in-terior, and the proportion as obserpted, to be for the continuous method patients.

No. 46,750 — SANULI, C. Distury, assigner to the litsum: Gerra-Perional Contrasty, New York, N. Y.—Composition for Instanting: Theorem First.—America, 16,000—150 and Composition Composition for Instanting Composition for Instanting Composition for Instanting Instanting Composition for Instanting Instanting Composition for Instanting Instanting Composition for Instanting Instanting Instanting Composition for Instanting Insta

No. 32,874.—HOIN S. JENNES, of Bangor, Mo.—Inproced Elettre-Megnet.—Datest dated July 23, 1851.—This invention is explained by the cisias.

Claims.—Contracticating the core of electro-imagests of a bundle of single wires and plateing said bundle of single wires in a tube, and leveling the trutes and wires while last into a U-slaped magnet, as illustration, and contraction, and contraction, and contraction and contraction of the purposes set for the purposes set for the properties of the properties of the purposes set for the purpose set for the purp

No. 55,562.—F. J. Boltron, London, Eng.—Signed Code for Electric Telegraph.—October 2, 1868.—Words and letters are codified by numerical urrangement, and the ligures are symbolized by dots and dashes.

Claim.—The levels described code of signals for communicating intelligence or transmitting messages by the electric or magnetic telegraph, and the method of arranging and compiling the same, substantially as set form.

No. 6, 1555.— A. B. ELV, Besten, Mara.—Insulating Theyroph Hin.—January 9, 1803.—
The effect with the shalless of a fixed service of the consideration of control-parties, with the salidism of a fixed service of the responsive with the salidism of a fixed service of the responsive with the salidism of the consideration of the control with the salidism of the control of the contro

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of the pairs a 2 to the state the teeth of the esc nately to enter main fearthed.

Third, in combination with the resilient pairies springs and the best borr, the binding spring K than stope or guessia V.V., substantially as kneels than stope or guessia V.V., substantially as kneels





No. 45,220.—83,00021, GARDENER, Jr., Now York, N. Y.—Maghing Gos by Distributional Conference of the Conference of Conferenc

No. 31,520.—SAMBLE, I. H. VANNE, of New York, N. V., nodegoes to Mircuitta, Vatore, A. Cuo, of assus plane,—Inspirent Literated Apparents for Lighting Gas,—Nature should be constructed by the processive of the construction of the control of the construction of the C

No. 10 get.— LERIANNER BODE, of New York, N. Y.—Inspersement in Electric Telegraphs—Desiret Attend July 19, 1816.— This leveralise careles in no applying an account, profits in consultants with the Ferre entrypt to a measure matter by a present a very rather than the street entrypt to a measure matter by a present a law very different of the telegraph of the street of the stree

No. 20 pero of compares G. Herr axis, of Philadelphie, No.—Imperentant in Medicar for Powelling and Netfording (pays, No.—Imperent done) May 97, 1941.—The mixme of the Neuroland will be banked from the Indian's Land Annual Annual May 97, 1941.—The mixme of the Neuroland will be banked from the Indian's Land Annual Resident Section of the Neuroland Section Section Section Section of the Neuroland Section Sec

No. 20,000.— O. O. Hearwoon, of Thilladophis, Pa.—Represented to Mechine for Professing Payer.—Thints should not all the J. 20,001.— This invention invotes to time clear or injection processing an interest of the clear of the processing and the processing and the processing the control of the processing and the proc

No. 23,095.—NAVIANDEL PARIS, of Rosso, N. Y.—Inspersed Methods of Communicating by mosts of Electric Taltyraph—Valunti dated August 18, 1601.—The Investor ways: "My of a self-cell weaking current at the extractively of an extended administry or subsections and conductor, capitally if at any point of that resolutors delective or imported installator and conductor, capitally if at any point of that resolutors delective or imported installator and conductor, capitally if at any point of that resolutors delective or imported installators.

ists." Reference mean to me to one specimens of invertion.

Claim.—The system of operating non-invulnited or imperfectly insulated cable or conductors, by such arrangement or medification of the receiving fustrument as we fee the results indicated in the proceeding specification.

No. 32-202.—Geneen M. Pertars, of Williamsburg, N. Y., sosiques to the Astributed Testing of the Control of the

No. 20, 500.—1. E. SHITH, of Poughlespels, N. Y.—Lapriezanest in Eletare-Haguelt
Poughles—Theory in the Benefit of Poughlespels of the Poughlespels
of Seduc conducting grows, as water, through which last a very many and enterespelsance
of Seduc conducting grows, as water, through which last an very more poughlespelsancy current will pass when the local circuit is closed, but through which the latitude
that the seduce of the poughlespels of the local circuit is closed, but through which the latitude
there is not expected.

Zielen—A supplementary conductor applied to the local circuit, to operate substantially as
and for the jumpos specified.

No. 61,122—6, F. VAN CHARTE, of New York, N. Y.—Improvement in Receiving Mag-nica.—Then dead dead Sprometor 22, 1242—1. Explained by the class.—Chain can be sufficiently as the control of the control

No. 28,173.—University P. Hantins, of New York, N. Y.—Inspected Tolgogoph Bard-wiss.—University of the Control of the University of the University of the State of the University was reported that (Control of the University of University of the University of University of

No. 10,2410.—CHARLES II. Dixtu of Recharty, Mass.—Inspected Trilegraphic Approximations of the Conference of the Confere

No. 72,186.—T. W. Eyazs, of Philadelphia, Th.—Improved Tatgeriphic Calit.—Tutous deed Agid 30, 1861.—The nature and object of the investion is asplinately the claim and California. The contrast and object is the contrast of the claim and California. The contrast of the composite protects, then diminishing the expectly of electrical continuous, which the cable is record against ability to est efficiently being made to record or different states. The contrast contrast

No. 11.61x.—Citantata Situenton, of Now York, N. Y.—Inputed Billad of Integrating beyond an earliefy new market of patients of patients of the confidence of

No. 32891—1). II. Firen, Jr., of Litchhold, Monigomery county, III.—Improvement in Li-quide, for lateraic Hetteries.—Intent thered thus 10, 1861.—The invention consists in pro-mining a companion envily decompose, loads elements of which have a steep a globally for hydrogen, such which will make with the hydrogen discharged, which have a steep a miles for the intention of the properties of the compound of the companion of the

vianle lattery. The ingenients of macromosus and a man water.

Clain.—The use of chlorato of pubms in combination with sulphuric acid and water, for the purpose specified.

*Also, the nice of the raits of chloric acid in combination with sulphuric acid and water, for the purpose specified, their action iscing substantially the same as chlorate of points.

No. a, 437.—Jours Tritoxia Wav, of Middleser, county, England—Lappercanet in the thirties Light by Derivitys—Vasual states Cheeler 4, 1961.—Valuation in finglesial April 37, 1962. The contraction of the

statistics a specificio.

Ne. E. (Ed. — 1997) Prince Princ

No. 24.5%—Hinters Votterliers, of Philadolphia, Da—logy. Philadolphia Thereis terms of the three properties, or with thire, leasted of hardyre these regions of the properties, or with thire, leasted of hardyre these properties, or with thire properties, or with the properties of the state of the properties of the properties

No. 29,282.—M. M. Jusqu, of Martinelly, N. V.—Impresented in Galina Person.—Patront dated May Jr. 1980.—In this serve one was the impression of power to the lever. Whe field better will descent the territory of the interest of the extension of the extension of the control of the result of the re

No. "A 127.— Jours Thromas WAY, of Middleser, county, England.—Insperenced in the training Leight by Hertriring.—Borns then Gredery, 18(1).—Potential In Regland April 23, more and the Content of the Co

stituting or specified.

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Next Agill—article—where all and to the despital of the specified of the Agillines of the Section of the

No. 18.26.— However Conventions of Philodolphis, Pa.—Pages Principant Electric Medicine— "Union them 2 May 18, 1891— The abovering promised relations in consequences of the page 1.26. The abovering promised relations in the consequences of the content of principant in the content of the content o

No. 26,201.—M. M. Jayen, of Moreicolle, N. Y.—Inpresented in Outton Perms.—Dates dated May Jr., 1806.—In this survey below the applications of power to the level A the fol-lower will descent limited as more whether that it would with an application of the lower will descent limited as the proposed and continuous of the continuous of the proposed proposed and the continuous of the law of the continuous of proposed and the continuous of the law of the continuous of the law Jr., part N, parting a o, particularly robot r₁, have a former being constructed and arranged relatively as described and for the appropries of forther.

No. 55.551.—W. W. Bavenezaez, of New York, N. Y.—Ingreed Affined of Lighting Chrysletined Zirophical Speaks ideal, Amency 31, 1800.—The claim and expraring Cody by Infoliance 20 (1998). The claim associated the electronetre to the gas aftern enhancingly and for the purposes of forth, meaning by gas fature has true of a large as jun or consistent parts of the purpose of forth, meaning by gas fature has true of a large as jun or consistent parts of the purpose of forth parts of the purpose of the p

No. 32-561.—HORREY CORNELIUS, of Politohiphis, Pa.—Insperenceal is the Deputition—Dependent May 10, 1612.—The greenforce are used of the cleanings, and the evidence of the Control of the

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No. 201: — JAMON NEURO, of Now York, N. Y.—Inspectored in Elettra-Diagnosis.
Building Apparation.— Neurost should by I i, 18eth.—The native and object of this formation.
Building Apparation.— Neurost should by I i, 18eth.—The native should object of the formation of the transition of the southern of t

No. 11,002.—Aurum 12.75 mms, of Breddyn, N. X.—Improvement in Electro-Mergaria.
The graph—Tomas dated April 2, 1421.—II the invariant four demonstra are obtained from a fine of the contraction of the contract of the contra

No. 27,475.—E. D. RESECULIVEZ, of New York, N. Y.—Imposed Talgrouph Fitter.—
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The inventor says: Letter, fore, the complex must of a capital the nature of the inventor.
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No. 32, 253.—ROBERT COUVERING of Plandschafe, Pa.—Insperament is Electropheron— Dates dated May 91, 1621.—The modalls probable the destropheron is construed with a convert of salary or eather proper entities probable the careful salary simply sidings the two plates convert of salary or all the proper entities probable to excited though simply sidings the two plates control of salary sides of the probable to the salary side of the probable of the salary sidings the salary control of salary sides of the salary sides of the

No. 73,554.—SELEPHEN MARCES, of Virena, Austria.—Impressess in Reley Mayinta— The Company of th

No. 23,478—A. O. HOLCOMM, of New York, N. Y.—Impreed Electro-Magnet.—Valuation of such state, 1,801.—The cident and enganing will explain his nature of the invariance of the forestation. The color and enganing will explain his nature of the forestation angular a

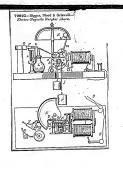
No. 20, 27.—Theorem Concepting of Published high. The—Improved Method of Lighting from the Manufacture of Published high the Conference of Method of Lighting of the State of the Conference of

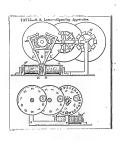
No. 30,000.—Acunas. Beryroun, of New York, N. Y.—Inprocessed in Reterophologeration or insure by which the operator in crustally a deposit a composal used in gold and convey, or gold and larve, you an analysis of section of gold and convey, or gold and the reterior of the convey or gold and the convey of the c

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No. 10.17——Source Borrow, By, of Northwara No.—Improvement in Triggraphic Borrowsca, "Desired Martine Commission of Martine Commission, and the Commission of Martine Commission, and when the Commission of Martine Commission, and when the American Commission of Martine Commission, and the Commission of Martine Commission, and the Commission of Martine Commission of Martine











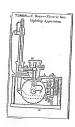




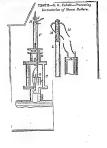


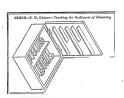






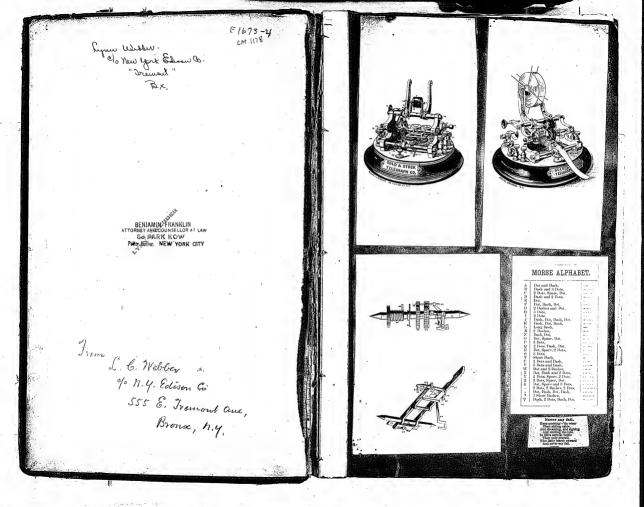






Scrapbook, Cat. 1178

This scrapbook covers the period of the 1860s and 1870s and contains a mixture of newspaper clippings, circulars, illustrations, mementos, and experiments per clippings, circulars, illustrations, mementos, and experiments in the state of the automatic telegraph. Most of the earlier material consists of clipping the automatic telegraph most of the mixture of the state of the state



IMPORTANT	INVENTION

Cheap Telegraphy—The Automatic System,

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(From the Newark (N. J.) Evening Courier.) In all times men have desired to communicate with each other through space. The traveler, far from his family, desires to inform them of his welfare from day to day. The invalid wishes to call to his bedside the masters of medical science from distant cities; the merchant, ever watchful over his individual interests, seeks to know the prices of foreign and domestic markets; the Judge, the Senator, and the General, who regulate their conduct by events which take place at a distance, are solicitous to obtain the earliest and most correct infor-

mation More and more clearly as human activity nereases, as our wondrous civilization unfolds itself, we perceive the necessity of perfeeting and increasing our capacity for distant communication. Already the telegraph affects our daily habits, regulates our ousiness, enters largely even into our social life, and ministers hourly to the wants and necessities of mankind. What was formerly an expensive inxury used at rare intervals by the wealthy, has by the efforts of many Ingenious minds to cheapen its processes, been brought to a success which would have appeared impossible to our ances

Before the practical introduction of telegraphs to the service of industry, they were

considered merely a parior cariosity The system most generally adopted (Prof. Morse's) dates from 1831. At this time the machine was very nearly as perfect as it is at the present time, and yet the inventor had to wait and labor for eight years before he succeeded in getting his invention so riously considered by the public. It would seem to be a law of human nature to regard merely as chimerical all startling innovations. Undoubtedly, even at the present time we treat admirable inventions, which will appear simple and admirable to a future generation, with obstinacy and contempt as our forefathers regarded the mechanical wonders which seem to us so simple. All new inventions in electric telegraphy, as in other things, have to pass through a long and neglected childhood.

The two principal systems of telegraphs used throughout the world are the Morse and House-Hughes Printing systems. The communications in the former system being embossed upon a strip of paper by an electro-magnet and lever or read by the sound of it; and in the latter system the message is printed in Roman letters upon a band of paper, by means of type wheels, one at each end of the line which by peculiar mechanism are kept running at exactly the same speed, so that at the moment the letter required is passing the printing hammer, a wave of electricity is sent over the wire which brings both hammers up to the face of the type wheels and imprints the

letter. The speed of the Morse system varies according to the skill of the operator the highest speed ever obtained being 66v two words per minute, but the average speed of one thousand operators is twenty words

per minute. The sured of the House-Hardes Printing system is somewhat greater; as many as eighty words per minute have, in exceptionsble cases, been obtained; but the average will not exceed 45 words per minute. But this avatem labors under the disulyantare of not working over long circuits, and upon bad wires like the Morse, and the necessity of employing very skilled operators, who require considerable mechanical knowleads. to keep the instrument in order.

It was soon apparent to inventors that no great increase of speed could ever be

obtained by any system which depended upon human manipulation, and many inven tors early turned their attention to tele-

graphing by machinery. Many attempts have been made in various directions, but abandoned, when Alexander Bain, an ingenious Scotchman, conceived the germ of a true system of Automatic Telegraphy which was the perforation of telegaphic characters on continuous strips of paper and recording the characters so perforated upon chemically prepared paper by electro-decomposition. But this ingenious man did not live to complete his invention owing to the seeming impossibility of a rapid preparation of the paper and the difficulty of manipulating the electric currents to obtain the rapid speed which

After his death the system was taken hold of by Sir Charles Wheatstone, the inventor of the English Needle Telegraph, and carried to a greater perfection than obtained by Bain. This system is now used upon the English Telegraphs. The speed is limited to such an extent that it is little better than the House-Hughes Printing system, but 75 words per minute being sent over a wire four hundred miles in length most excellently constructed.

In America several inventors have been at work carrying the germ of Bain's idea to its perfection, among whom may be mentioned Lefferts, Humanaston, Bradley, Craig, Little, Westbrook and others, all of whom contributed to its advancement.

In 1870, Thos. A. Edison, of Newark, N. J., inventor of the Stock and Market Reporting Printing Telegraph, used so extensively throughout the commercial world, perfected the first rapid machine for a rapid preparation of the paper, and other machinery for the transmission and reception of the messages, employed in the present system of telegraphy; and in 1871 discovered the laws which regulate the waves of electricity sent at high speeds through long suspended telegraph wires, and invented his mode of manipulating these waves by what is called "inductive compensation," so that waves could be transmitted and recorded under all conditions at a speed approaching the marvelous. Other inventors had succeeded in

times, but they were constantly troubled by phenomens, the laws which governed rapid transmission not being understood. The patents and system of Edison have been acquired by the Automatic Telegraph Company of New York, who have a nun ber of wires operated by this system, their number being rapidly extended by the building of new lines and the acquisition of

The speed with which intelligence is transmitted from New York to Philadelphia and Washington is something incredible. The despatches of the Press Association are sent at the rate of one thousand words per minute in all conditions of the weather, which

seriously affects other systems. Between New York and Pittsburgh eight hundred words are sent, and between New York and Charleston, S. C., a distance by wire of one thousand and fifty miles mes sages are transmitted at the rate of three hundred words per minute, a wire which neither the Morse, nor House-Hughes can unsetically work direct. It will be some that the capacity of one wire between New York and Washington is nearly equal to the total mail correspondence between those two cities.

The various operations performed in the preparation, transmission, reception and transcribing of the message are very simple The message as it comes from the public is handed to an operator scatcal before a machine called the perforator, which is provided with a key board like that of a plane, the depression of any key punching the telegraphic character upon a continuous strip of paper. By touching the proper keys the

message is quickly transferred to the strip, which is then pulled out a short distance, wound upon a reel and sent to the transmit-ting room; here it is taken by the circuit operator, the end being placed on a metallic drum, connecting with the battery, resting on top of which is a small arm, having a little wheel, connecting with the line wire. The machine for the reception of the message at the distant end is similar, only the perforated paper is replaced by chemically prepared paper. If now the signal is given, both operators turn their respective maboth operators turn their respective machines. As every hole of the propared strip passess under the small wheel and arm consected with the line and butter, the small roller course in contact with the large one, the line of the line of the line of the large one, the line of the lin

sets free from a coloriess compound a black substance and a dot is recorded. If the hole be a large one, a longer wave relectricity is transmitted and a dash is recorded; but when no holes occur in the paper the battery is separated from the line by the interposition of the paper which, when dry, is an insulator. Connected with the transmitting and receiving machinery are the "compensators," the action of which cannot well be described to those unac-

quainted with the complicated phenomena of rapid telegraphy. or the message has been received it is sent to the copying room where it is tran-scribed by clerks familiar with telegraphic characters, and thence to the delivery de-

partment.

Though the process seems long and com-Though the process seems song and com-plicated in the telling, it is resulty simple and quick in doing, the only delays to the trans-mission of a message being the preparation of the perforated slip at one end of the line, of the perforated slip at one end of the line, and transcribing the message at the other. These apparent delays are bestering the performance of the fact that they are not so performed by the fact that they are not so performed by the fact that they are not so performed by the perforations of the major and the major and the same causes by the prevent lays from the same causes. By the prevent lays from the same cause the same cause of the same cause of the same cause of the same causes of the s sumed, while by the men and instrum tor upon a single wire and instrum

tor upon a single wire and instrument can transmit us fast as the messages can be pre-pared by fifteen to tweaty "perforators."

The great debays by the Morse system consists in the limited speed with which the operator can transmit the message over the wire, so that at certain hours of the day they accumulate so fast that a message handed in the telegraph office at 3 P. M. is not sent over the wire until several hours later; and transmitting with considerable rapidity at over the wire until everal basis have said in the basis which will be used to be the said to the basis when the basis were as a committee very middly, and when the wire is again to sometime to open a consumer to the property of the proper measure, to the extreme sensitiveness of the chemically prepared paper to an electric current, being in fact one hundred times more sensitive than the ordinary Morse

apparatus.

It is these various considerations which It is these various considerations which renders this automatic system so reliable and cheapens the cost of telegraphing, one wire being nole to do the business of thirty worked upon the Morse system, and hence so large a capital is not required. A large saving can also be made in the item of labor, it not being necessary to employ skilled operators at high salaries.

It is the intention of this Company at no

It is the intention of this Company at no distant day to reduce the telegraphic rates so low that the entire commercial corres-pondence of the country shall be done by telegraph. The executive offices are at 80 and the operating rooms at 64 and 66 Broad-way, New York.

IMPROVED TEBEGRAPHY.

THE ACTIONATION ESSEED.

UNCOURTED AND PROPERTIES.

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A PUGNACIOUS GOAY.

A PUGNACIOUS GOAY.

His heat was the shape and size of a Bullitt
County waternelso, and he was so back that charces
would make a light mark on bins. The cent gas askep
conduct of against the side of the tourse. The durker was
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"MODEL HOSTIC PATHELIST."

"Pulle, deep lands in some with the new!"

"Byte, deep lands in some with the new!"

"A pulle and the land in the land in the land."

"A pulle and the land in the land in the land."

"A pulle and the land in the land in the land."

"A pulle and the land in the land in the land."

"A pulled in the land in the land in the land."

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EDISON'S INDUCTORIUM.

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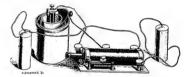


This is an exceedingly powerful induction coil, designed expressly for medical and family use. It is constructed upon a principle recently discovered by its inventor, whereby most extraordinary effects are produced, without a corresponding increase in the size of coll, or battery power, as has heretofore been necessary. Hence we are enabled to family the public with an apparatus at one-third the price asked by other makers for colls of equal

The workmanship is of a very superior style, and of a solid and substantial character.

The buttery which accompanies the coll is the same as used by the telegraph communics.

An almost infinite number of experiments may be tried, by manipulating the electroles. This instrument should be in every family as a specific cure for rheumatism, and as an inexhaustable fount of amusement.



The second cut shows the manner of connecting the coil with the haltery, and electrodes. The latter when applied to different parts of the body for medical purposes, should have moistened sponges placed in the hollow part of each. The handles, which are held by the persons applying the current, should be wrapped with dry paper to prevent its passing through his own body,

Directions for charging the battery accompany each box,

PRICE of each complete apparatus, SIX DOLLARS, sent C. O. D. by express to any part of the U. S. Liberal discount to Agents.

EDISON & MURRAY, 10 & 12 Ward St., Newark, N. J.

Manufacturers of Recording Telegraph Instruments for learners and private use, Telegraph Supplies, Batterlet Mirror Galvanometers, Resistance Coils, Condensers, Philosophical an aperimental Apparatus, etc.

For Electors of President and Vice-President of the United States

HENRY W. SAGE PREDERICK P. MORRIS HORACE E. DRESSER HOWARD M. SMITH. JAMES O. CARPENTED WILLIAM A. BOOTH DANIEL W. L. MOORE. MARTIN II. HEALEY LISPENARD STEWART, DANIEL G. BOLLINS JOHN L. HAMILTON, EDWIN A. MCALPIN, GEORGE BLISS, GEORGE W. WANMAKER SETH M. MILLIKEN. WILLIAM L. BONES WILLIAM IL TEN EYON PAUL TUCKERMAN.

JESSE SELIGMAN SAMUEL M. CHURCH, HERMAN LIVINGSTON EDWARD A. DURANT, J. WILLIAM S. C. WILEY DANIEL HAYS, MORTON & PARMPERE GEORGE B. STON JOHN W. VROOMAN FREDERIC MITCHELL FRANCIS IL GATES, JOHN C. BARRY, WILLIAM MCCOY PELLET GEORGE M. WATERMAN. LEWIS P. ROSS CHRISTIAN KLINCK. WILLIAM H. WALKER. REUBEN G. WRIGHT.

For Chief Judge of the Court of Appeals, CHARLES ANDREWS.

For Mayor EDWIN EINSTEIN,

For Register HUGH COLEMAN

For County Clerk, HENRY C. BOTTY.

For Judge of the Court of Common Pleas for the City and County of New York, LEONARD A. GIEGERICH

For City Judge, BUFUS 11. COWING

For Additional Surrogate for the City and County of New York JOHN S. SMITH.

For President of the Board of Aldermon. C. VOLNEY KING For Representative in Congress for the Sixteenth Congressional District,

GEORGE A. BRANDRETH. For Member of Assembly for the Twenty-ninth Assembly District, WILLIAM G. DAVIS.

For Alderman for the Twenty-third Ward, HENRY L. SCHOOL.

TO THE PUBLIC.

TEST

AUTOMATIC SYSTEM OF TELEGRAPHY

NEW YORK AND WASHINGTON.

OFFICE OF THE AUTOMATIC TELEGRAPH CO.,

New York, January 28, 1874.

The President of the Western Union Company having set forth, in a published letter to the Postmuster General, under date of December 27, 1873, concerning the Automatic or fist system;

- 1st. That the Automatic system is slower than the Morse;
- 2d. That it requires five times as many operators; 3d. That consequently it is more expensive :

The Automatic Company determined to test the accuracy of these statements by a public demonstration over their line of one wire between Washington and New York.

By invitation, the electrician of the W. U. Co., Mr. Geo, B. Prescott, was present in New York, and Mr. Whitney, The trial took place on the evening of the 27th in-t. manager of the W. U. office, Washington, D. C., was at that end. In addition, there were present in the New York miniager of the o. c. onice, encoungrous, t. c., was at time case. In approximation there were percent in the 20st 1986 office, Hon, Hiram Barney, Gen, J. H. Wilson, H. G. Pearson, Assistant Postmaster, and Mr. Hinchman, also of the Post once, from fitting nature, ven. 3. 11, ven.ma, 11, v. frantom, ven.mat from market nature, consumma, and several office Department, New York, J. G. Smith, General Superintendent of the Franklin Telegraph Co., and several others; and in the Washington office, Mr. Lines, of the Post Office Department, and Capt. Howgate, U. S. Signal Corps, and others, The matter transmitted was the President's late message, with the Spanish protocol attached, numbering 11,130 the matter transmitted was the cressions and message, with the Spanisa photocon moreous, numbering (1,130) words; it having been selected in consequence of the declaration that its transmission over eight wires by the Western

words; it mixing oven sewered in consequence of the recurrent flat.

Union Co., on December 2, 1873, in 70 minutes, was a feat unparalleled in telegraphy. The work commerced in Washington at 3.20, p.m. The document was eagled complete in New York at 6.48, p.m., because in the work of the work

minutes, as against 59 minutes by the W. U. Co.

The Automatic and but me wire; the W. U. Co. and eight, The Automatic used ten perforators, thirteen copyists, and two Morse operators, as against sixteen expert Morse The Automatic used ten perforators, thirteen copyists, and two Morse operators, as against sixteen expert Morse operators by the W. U.; the average pay of perforators and copylets being \$40 per month. All of which details are

in the second-rations made, let it be borne in mind that on the one-slike the work was done by the ablest experts shown in the accompanying report. in the world, and a company with years of experience. On the other side, except the Morse operators necessary to manin the worth, and a company with years of experience. The the dust target of experience which is regulate for experience.

The people are interested only in knowing whether the capacity and economy of the Automatic system are to inure to their benefit. The following comparison of our charges with the tariff of the Western Union Co. is our reply:

WESTERN UNION TARIFF. AUTOMATIC TARIFF. New York, Philadelphia, Baltamore, Workington. Uniform charge, 25 cents for 20 words, And these advantages will be extended relatively as we extend our circuits. GEO, HARRINGTON.

Devident 4 Terror miles to 12 for the continue of commencing, as reported in New York and Washington, but whele these excepted the said

GOLD AND STOCK TELEGRAPH CO.

No. 61 Broadway, New-York, MASSING, LEGIUMS Press. Roberty C. Millern, Societal Treasy. M. Cons., Vice Press.

The foreign fraud diffed Arthrol C (1974 PMS).

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DERENCTORS. TRICK R. Elson, WHILING ORION, HORNOG P. CYCUR., Milsonic Lateries, James B. Bynkin, Amer

HEART. red beer

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For A

For Mr

General Office of the Automatic Telegraph Company, 66 Broadway, New York,

January 28th, 1874.

HON, GEORGE HARRINGTON. Problem.

Sin,-I respectfully submit the following report of the work done in the demonstration made on Tue-day evening, damany with as per your instructions of prior date. The matter selected for the purpose was the Pre-ident's late message and the Spinish protocol.

	protocos.	
		STATEMENT:
	Length of Circu	rd,
		1 wire
		Labor:
	New York,	Morse operator, 1 Copying operatives, 13
	Washington,	Morse operator,
		Time;
	Washington,	P. M. Mins.) Perforating commenc sl, 5,39 /) Perforating completed, 6,243 / 451 (

Total time, 69 minutes,) Copying commenced. 5.42 / 66 6.48 / 66 (Copying completed.

Cost . Morse operators, \$100 per month. Automatic operatives, . 40 "

The characters were perfectly legible and well defined, and were copied with great facility.

The average time during which the perforating operatives were actually at work was forty-five and a half minutemaking an average per operative, per minute, of twenty-five words,

maklig an average per operative, per minute, of twenty-fave more).

The average time of copyles we still painters, making an average per copyles, per minute, of seventeen world.

This time the Western Chain Co, we had no be tage copy of operators. Itom which to select our working force, but
were compelled to utilize of good, but and isolificrent, which makes it proper to call special attention to the absence

ger many. The whole time consumed was sixty-nine minutes, as against the published record of seventy minutes by the Western Union in their late effort.

The average time occupied by Automatic was fifty-five and a half minutes,

The average time secupied by Western Union (as reported) was fifty-nine minute-

The average state second by research one is represent as any one anome.

An unfortunate defect in the paper caused much delay in the transmission, otherwise still less time world have An untormance recess to our paper source must nearly in our transmission on this corradom, as that point been consumed. No attempt, however, was made to attain a high speed of transmission on this corradom, as that point form (consumed), see attempt, merceus, but more in many a man special consumers on the form, as a many pool, and already been yielded and incontestably proved in the presence of the Hon, Jun, A. Cressnell, Postmarter General, and not intensity been present and assumentably process in the presence of the storm state, i.e., a translated contact, contact, and numerous other gentlemen, including Senators and Representatives in Congress, on the evening of Devember 11th, 1873. Bungtons over generating measures and a hard from Washington to New York in twenty-two and a half

ites.
Our operatives were congregated at Washington and New York on Monday, January 26th, and were tested for our operators were conjugative at transmission and New York to Associate, contrary some are were rester to the first time on the evening of that they. I reall attention to this, in uniterpation of the charge that the time which has the new same of the publishing of the message has been improved by our operatives in practising upon it.

at same one parameters or one successor may not support on or operative in practicing upon it.

With the experience gained in this demonstration, I saw confident that in another we could readily dispense with at least two periorators and three ropyists, and yet perform a like amount of work.

E. H. JOHNSON,

General Mining

We were present in the office of the Automatic Telegraph Co. Last evening, whilst they were reviving the Project dent's message and the Spanish protocol, from Washington

At 5,39, p.u., Washington signaled that the perforating had commenced. At 5.43, the first portion of the message was received and handed to the copylets. At 6.42, the last portion was received.

At 6.48, the copying was finished; the whole time occupied being 60 minutes

There were 12 copyies in the room; but we noticed that two or three were unemployed a portion of the time, so that, had all been constantly employed, there would have been several minutes saved in the aggregate. The writing was perfectly legible, and the copyists translated with great facility,

(Signed) JAS, G. SMITH, A. G. Supt. A. & P. & Franklin Tel. Cos. H. G. PEARSON, Assistant Postmonter, N. Y. EDWARD W. SERRELL C. E JAMES H. WILSON (of Window & Wilson). HIRAM BARNEY.

> OFFICE AUTOMATIC TELEGRAPH CO., Washington, D. C.

E. H. Johnson, Esq., General Manager,

At the test which took place on Tuesday evening, January 27th, the late annual message of the President, together At an res, when conspace on the easy evening, annally criticine site annual anguage of one resource, opening with the Spanish protocol, amounting in all to Eleven Thousand One Hundred and Thirty (11,130) words was perforted by ten perforators, and transmitted automatically, by one Morse operator, in the following time:

Perforating commenced, 5.36* P. M. completed, 6,211, " Time, 45 j minutes Transmission commenced, 5,40 completed, 6.39. Time, 50 minutes.

The above is New York time, as computed by Washington Observatory time.

Respectfully.

P. B. DELANY, Manager,

Having witnessed this test throughout, we can certify to the correctness of the above statement

ROBERT D. LINES (of Post Office Department). D. J. GIBSON, U.S. J. Arting Signal Office.

B. W. HOWGATE, P. S. J. J. H. LATHROP.



GOLD AND STOCK TELEGRAPH CO.

No. 61 Broadway, New-York,

M CORGAL LEFTERIS, Process V. Millery, Socks and Theory. A. Cong, Vin Process.

DEBRUTTORS. WILLIAM ORION. HORSON P. CYLES. Maistan Linerals, JAMES H. BONGOL Attorn R. Couver.

BEART.

her face, thought tandem," 1 uppove

IN PRESIDENT OF THE UNITED STAYES.

Total slaves declared f

Wacress, on the 23d day of September, year of our Lord 1862, a Proclamation was issued

by the President of the United States, containing, among other things, the following, to wit: That on the 1st day of January, in the year of our Lord 1860, all persons held as slaves within any State or designated part of a State, the people where the said then be in rebellion against the United States, shall be then, thenreforth and fortver free, and the Executive Government of the nited States, including the military and naval autheelty thereof, will recognize and maintain the precions of such persons, and will do no act or ages to repress such persons or any of them in any effort they may make for their actual treedom; that the Executive will of the first day of January after said, by proclamation, designate the States and parts of States, if any, in which the people thereis respectively shall then he in rebellion against the Inited States; and the fact that any State or the people thereof shall on that day be in good faith represented in the Congress of the United States by morphiss-chosen thereto at elections wherein majority of the qualified voters of such State half have participated-shall, in the absence of strong countervailing testimony, he decared our elusive evidence that such State and the people

Now, therefore, I, Annaham Lincoln, President of the United States, by virtue of the power in me vested, as Commander-in-chief of the Army and Navy of the United States, in time of actual armed rebellion against the authority and government of the Biglied States and as a fit and necessary war recipire, do, on this first day of January in the rear of our Lord one thousand eight hundred and year pro our Lord one thousand event induced and introduce, and in accordance with his purpose po to do, multity providings of the state record of one limited days from the day the thousand the largest poler and distinguate as the plateau pro-tinged poler and distinguate as the plateau plateau the pole poler and distinguate as the plateau plateau and the poler of the poler poler poler poler poler poler.

thereof are not then in rebellion against the United

dev in rebellion amainst the United States. ring, to wit: Arkanias, Texas, Louisians, parishes of St. Bernard, Plaquemines, on, St. John, St. Charles, St. James, Asren-Assumption, Terro Bonno, Lafourche, St. Mary, St. Martin and Orleans, including the city of New Orleans; Misslaslpps, Alabama, Florida, Georgio, South Carolina, North Carolina, and Virginia execut the forty-clobs counties designated as West Virginia, and also the counties of Berkley, Accomae, Northampton, Elizabeth City, York, Princess Ann and Norfolk, including the cities of Norfolk the present loft precisely as if this precisingtion

And by virture of the power and for the purpose aforesaid I do order and deviam that all necessar held as alayes within said designated States and parts of States, are and hencefordard shall be free, and that the Executive Government of the United States, including the military and usual authorisies therereof, will recognize and maintain the freethe people to declared to be fig to a pala from the people to declared to be fig to a pala front all violence, unless in measurement of them in

all cases when allowed to labor-faithfully for reasonable wages, and Ffurther 'deelers and make known that such persons of sujurie condition will be received into the nimed service of the United States, to garrison forts, positions, stations and other places, and to man vessels of all sons in cald ervice. And upon this act, sincercly believed to o an act of justice, warranted by the Constitution dement of mankind and the gracions favor of

of, I have hereunto set my hand the seal of the United States to

"AN AMERICAN IDEA."

News Reporting Telegraph Company.

This Company have already started a Private Printing Telegraph line in this City, and are locating a number of their Printing Telegraph Machines in the offices and dwellings of some of the most prominent citizens.

They are intended for giving all general news of the worldfinancial, commercial, domestic and foreign—the moment such news is received in the main Telegraph Office in New York, and several hours in advance of all newspapers.

The advantage to those who become subscribers we searcely need enumerate, for hardly any event of consequence can occur in any part of the world reached by the telegraph, but which is instantly transmitted over our wires and printed out on a continuous strip of paper, in Roman Letters, hours before such news is published in the papers, and if the event should be of great consequence minate telegrams will be transmitted during the day and at a late hour

The instruments are novel and very ornamental, are quite noiseless, and require very little attention.

On request we locate these instruments in the Drawing Room, Library, or any part of a dwelling Free of Charge,

For furnishing ink, paper and the news, 83 per week is charged. Our agent will call and exhibit and explain the instrument in a few days, and take the names of persons who desire the machine,

News Reporting Telegram Co.,

Daily Advertiser Building. 788 & 700 DROAD ST., ATERCANA.

> I slept in an editor's bed last might And I thought, no I templed

> > A LADY, who painted her face,

GOOD-NATURED HEART. As redcome as sumbine . In overy place.

Is the beaming approach Of a good-natured face. As gental as supshine.

Lake warmth to impact, Is a good-natured wood From a good-natured been



EDISON'S INDUCTORIUM

DIRECTIONS FOR CHARGING BATTERY.

PIRECTIONS FOR CHARGING BATTERY.

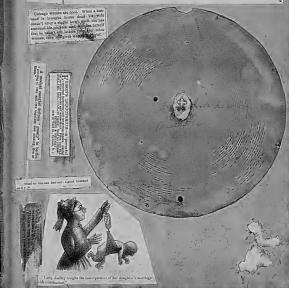
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PRICES.

Price of complete Machine, sont C. O. D. by express, \$0.00 Liberal discount to Agents. When sold in peris, the prices are for Battery 75 cents; 10s \$1.00; Handles and Wire 90 cents; Instrument \$3.73. Bichromate of Potash and Sulphuric Acid can be purchased at any Druggist.

EDISON & MURRAY.

10 & 12 Ward Street, Newark, N. J.



The Anti-Slavery Amendment to the Con-The President has issued the following procin We give place to the subjected in the Power at the request of a correspondent in Concess. Harpshire, for the purpose of asking whell he estillity, or in past, authentic. We dealer stitution. The President has marked the President and amnesty to all aution effering full parden and amnesty to all thous who true empaged in the late schellion:— Fired and Bells Rung in Honor the Event. BY THE PREMIDENT OF THE UNITED STATES OF ther such an ancolete of THE CONTROL OF THE CO A PROCLAMATION. Rejoicings Throughout Massachusetts an His Excellency the Governor last evening re-ceived the following despatch:— WARMINGTON, Feb. 1, 1865. His Excellency Sons A. Andrew, Occernor of House character, Scales and Andrews, Occernor of House conserve, station:—
The President of the United States has just shred
the resistant of Congress, submitting to the Legislainces of the several coates a preposition to anneal the
Constitution of the United States.

Jour G. Nicolar, Private Secretary. lichten and fructify the remotest " The French Endameder, glow pride, but too polite to dispute the previous toast, deank: Joan G, Nicotax, Pirele Scotslay.

Immolisted parts the integram was received acquainteen was received acquainteen was received acquainteen was received acquainteen was received and the second part to be reliabled forms by Adjustic Second Conference was the General Oxford to General Conference was an interest of the conference was received as a mine of the great to of containment from the Boston Light Artillery, Capit. Lordes Commission, and the Conference was received as discussions from the Boston Light Artillery, Capit. Lordes Commission, and the Capit. Lordes Conference was received as the conference was received as a contract of the conference was received as a conferen "FRANCE—the Moon, whose me cheering rays are the delight of all ing them in the darkness, and in decariness beautiful."
"The American Endousalor, it rose, and, with his usual simplici "Groude Wartington oth manifed the Sun and Most to alk obeyed him!" The build of Histolium, Cambridge, Christolium, and Charles were hearing, and address sets to be fined Charles were hearing, and address sets to be fined as the control of Made 107, the Laterica Macroscopies of the United States of the Country of the Co 1. Floor and Meal ... Floor and Hea-Cesten Goods. Lumber. Leois and Shees. Leois and Shees. Leois and Shees. Method Goods. Method Goods. Method Goods. Method Goods. Her Floor Ligron. Chine Faraitre. By and Rebell to Her Floor Goods. Method Faraitre. Her Bender Goods. Agricultural imple. The Vote on the Anti-Slavery Amendment my hard, and have caused the scal of the United States to he hereasto affixed.

Deem at the city of Washington, the treesty-4816 day, o
Decentler, in the year of our Lead win thousand eight
handred and risay-eight, and of the Independence of the
United States of America the study-titled.

\$\frac{1}{2}\$ We give below the vote, by States, on the constiintional extendment shellshing alayers, plecing in Stalles the names of the sixteen Democrats ve in favor of the proposition. The only Republican
voting against the amendment was Brutus J. Clay;
of Kentucky. Every Republican member was 2- Cornes of the Gold Manage Series were suggested of Section Pathemetr.— The viglow-respective of Section Pathemetr.— The viglow-respective of special physical set good from the suspension of special physical set of successing to many readers, and withink; 18 will, beforecasing to many readers, and withink top reference;

182. present and voted. Eight Democrats did not vote, and among those was Mr. Marcy, of New Hamp-17. Agricultural loop.
18. Paper.
19. Rosp and Castles.
20. Fisheries. shire. The rote was as follows:-Moine—Teas—Biaino, Perham, Rice, Pike, 4; nsy, Secon'il. New Humpakirs—Yeas—Patterson and Rollins, 2; nat resing, Marcy. Yerment—Yeas—Baxter, Morrill, Woodbridge, The first state of the state of Formari-Year-Baster, Mercil, Woodbulger, Management-Year-Baster, Mercil, Woodbulger, Management-Year-Bay, Amer. Bollow, Bioper, Williams, Grand Gordon, Challey, Bioper, Woodbulger, W. Wang, W. W Ex-Scoretary Chase has been speaking from the sump in Kentucky. He cetted the Procled mution of Emancipation upon the authority of the Constitution, in an argument made at Dov' Implies which were as circulative as bridged. The shall be seen as the shall be shal May Inches Lowers 1500, 851,523 255,641 100,160 217,418 117,418 117,418 117,418 117,418 117,418 117,411 118,622 11,131 118,623 11,131 118,623 11,131 118,623 118,623 118,633 118 Pennsylvanie-Toss - Baity, Brownil, Cof-reds, Hab. Kelly, McAllier, Moorhau, A. Wers, L. Myrs, O'Mell, Soulidi, Eserous, Ras-sill, Tracy, Willara, 18. Asys—Ancona, Durlson, Demnison; Johnson, Miller, Randall, Styles, Strouse, 8. Kei voling, Learn, Delinocrat, Moryland. - Toss - Croswell, Davis, Thomas, 103.4 113.7 25.9 60.9 1.5 163.9 43.1 163.9 153.9 MON MAN Acting Tra my ot War-Siliton CAMERON my of the Nary-GIDEON V der General-MONTGOMER ry of the leterior OALED D. Tor Alterney Georgi EDWARD BATE A Trenty Assault, 20, July 1860; Nov and the emission of page 1860; Nove and the emission of page 1861; Stories, 1907 was the control of page 1861; Stories of This was the control of page 1861; Stories of This was the control of page 1861; Stories of This was the control of page 1861; Stories of This was the control of page 1861; Stories of This was the control of page 1861; Stories of This was the control of page 1861; Stories of This was the control of page 1861; Stories of This was the control of page 1861; Stories of This was the control of page 1861; Stories of This was the control of page 1861; Stories of This was the control of page 1861; Stories of This was the control of the control of page 1861; Stories of This was the control of the contr 11. Voting-La Blond and McKinney, both 7 for Attorney ofference of an interest for a first form of the form Voting-McDowell and Voorboos, Demo The state of the s The Puture. What may we take into the year Secret?
That mathle doe
Admits no fruit of all our long endeaver.
To gathered see. What can we here keyond the unknown nor What can we here keyond the unknown nor of all our folling: in the life farmoutal Keyondad weight remains, No glife, nor stains. No giver, for stans.

Naked from out that for above bohind us

No word cause with our coming to received us

What weaters word was near,

No hope, no feet. no the ellent, statere might before us,
No bush was gule;
No bush as number the corestination o'er us,
Committed at our side,
Mo chart, no guide. No cases, no grass.

Yet feeders forward that midnight, black and helion of the feeders foodsteps fare;

The beckening of a Fasher's hand we follow—

He care, no care. Q. Farry gave me a blick wainut box of amely

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24.

Salem. 100. 3 1814

dir-

numbers of the Articles of Impeachment.

Owing to the universal interest felt in the vote to be taken to day in the United States Senate on

to be taken to day in the United Sintee Senate on its Articles of impendentar, we give the substance of the charges contained in those articles. The full test of the articles would occupy about three columns of our paper, and they contain many quotations from the President's speeched and other documents not necessary to the number of the containing of the case in its president's speeched and other documents not necessary to the number of the containing of the case in its president's speeched and other documents are necessary to the number of the containing of the case in its president's president and the containing of the case in its president and the containing of the

Art. 3. referring the facts with regard to Taorsas' so polatizes at Sear-ding the auditional charge of librarily open the fact of no through integers in the cities of Sear-dary for the Japantasetz of War during the company of the Search art for the Japantasetz of War during the search of the Search and no search co-ding in the

[25] [1] [184].

[26] It is a series of the first property complete with homes and others to defeat the execution of the framework of the fram

ory to the companies; see, and this makes of printer-of-there act.

Tellurges that the Freedom't free companies to printer the exceeding to printer of the Fernar-of-there are the units attempt to prevent occurring Examina from how other, and did commit a high mid-decentor i

der, & charges that the Pre-ident, with intent unta-fer, & charges that the distancements of the messays ages of the fee like mediatry acreed and for the Department, it war, did appoint Thomas to be Secretary of War of

and obly orders grown uses treat-term and the sharing of the control the sharing of the three control the sharing of the control the sharing of the three control the sharing of the three control, said on certain speciales shree control, said on certain speciales shree control, said on certain speciales shree control, said on certain speciales shreet control contro

roug man or precises at a managemen, according to the problem of t

The Republican City Committee have selected you as one of the Pice Presidents of the Ulnion Rully to be held at Olechanic Hall, this evening, at 7 , o cleck, and respectfully invite you to meet them at the anti-nom, and to take a seas on the platform.

Mense show this to the deer heeper, at the foot of the custern front stairs.

H. P. Phillips, Chairman 1. C. Journ, Secretary ,

> loin litter, Children Incas C. Faultine Record M. Dellas, Pa. Igin B. Welber, Col.... Joseph A. Wright, Ind., John Applemen, Mr. Wm. Presten, Ky weden and Normay

smalling of the case in 1th present stages, besides that the whole are unsheared with uffire legal phenocology. The glyd of the article is a following. The present of the Domithers and how of the control is statistical of the Domithers and how of the control is statistical of the Domithers and how of the control is a statistical of the control of the built of scales, and control of the control Contains a commence of the com

THE NATIONAL DEST OF EXCLAND.—This deb THE NATIONAL DEST OF ENGLAND.—This deb-in 1859, was in beand numbers £524,000,000. In 1864 it may reduced to £511,000,000 A table in the New York Journal of Commerce, gives the follow-ing as the gross revenue of Great British; for the year ending March 31, 1864 :

Excello.
Stamps
Tracos.
Property & IncomeTax...
Post Office.
Crown Lands.
Miscellaneous, (Soes, &c.). £70 506 95 Total Revenue. OROSE PURPORTURE FOR SAME PRESON. Interest on Debt. . Civil List. #28,511,791, 10 771,490 15,812,676 10,821,660 4,627,483

The following is a list of the new English Ministry with the ages of the members and their C5 060 10,000

2,000

Lord Privy Scal, Earl of Kimberley, 42 President of the Poor Law Board. Mr. G. J. Goschen.... Pestmister-General, Marquis of Hartington.
Chief Secretary for Ireland, Mr. .ns .45 Chichester Fostesene..... The above form the Cabinet. First Commissioner of Public

5,000

Works Mr. Levani Vice-President of the Council, Mr. Lord Lieutenant of Ireland, Earl Solititor General, Mr. J. D. Colo-

of the late distinguished Judge, Sir Janus Knight Bruce, and is son-in-law of the late General Sir William Nopley, the historian. Mr. Bright was offered the Home and the Indian Departments but declined them. At a privy council held a: Windoor, on December 9, when the new minis-ters "hissed hunde" on their appointment, Mr. Childres, Mr. Layard and Mr. Forster, were sworn members of the council, but Mr. Bright took the effirmation allowed as a substitute toan un'b, where persons have seruntes to taking oaths. All of these gentlemen hereafter are entitled to the designs:

MILITARY STATISTICS OF NEW ENGLAND.
A friend at Washington have being for the Treeeller the statistics or all the men furnished by the New England States under the several calls of Problem Lincoln. That a tract of land hardly two hundred miles square should have given over three hundred and eight thousand men for three years to the service of their country is as credita-ble to their liberality as to their patriotism. In 1950 is would not have been deemed possible.

A H R R B B and sourt to List. At England

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POLESTE PUREFUL OF BECK...

LIFE AND DEATH

TOM COLLINS.

THE SUBJECT OF THIS SKETCH. ----

Tox Collins was born of poor but respectable parents, who did reside on a part of this earth, called the Isle of Pippee, where there is neither land nor city, and water is dam scarce? Chiamusic kept him so small, that for 17 years he was taken for a baby, at the end of that time, he was taken for a child. As he approached mans estate, the antipathy to extra lingo of all descriptions, which was such a destinctive trait in his character, began to show itself to such an extent, that it was found necessary to send him up in a balloon every ten minutes; when he descended, however, he was beset by such a pile of chinslingers, that on one occasion he was forced to jump into a coalmine, the effect of which was to "pulverize"

The reader can thus see, that this man was literally talked to death! and for the benefit of his widow, a small fascimily of himself, as he appeared after death, is sold as a warning, to the deaf and dumb .-

On his tombstone this legend is inscribed:

Here lies a youth, to parents, friends and country dear, Who scarce had seen his seventeenth year, But in that time so much good sence had shown That death mistook seventeen for sevel. one,

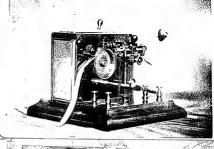
A tall Yanken standing six feel three lines; in his stockings, was said-loop sinted-typen stocking of a fever. Having a best of a fever. Having a best of a fever. Having a best on spill of many fact in the feel, when he asked:

"What are you putting them on an fact for "
"Why!" says the, "to try and draw the pain on

"A song for our banner" the watchword recall, Which gave the Republic her station. United we stand, divided we fall ! I timade and preserves us a mation.
It made and preserves us a mation.
The union of takes, the union of lands,
The union of States none can sever:
The union of learts, the union of bands,
And the flag of the Union forever and ever:

9 Say of the Union forever! king of the day, mothe What God in his infinite wisdom designed,
And armed with republican limited,
Xed all lice artive despots and factions consisted
Have the power to conquer or sander z
The union of lesse, the union of lands,
The union of States none can sever z
The state of the union of hands,
And the flag of the union of hands,
The lag of the Union for ever z
The lag of the Union for ever z WEDDING RINGS





THE WORLD'S PAIR, 1876;

.... If men a devoted wife nodes not such as a sure is length by his sees our and says that she wouldn't creak a work, he realizes all at once how feerfully and wonderfully worses are made. Depend all depth it was a backelor who pe

Asleep within the tomb; Then, O my Lord, prepare, My aoul for that great day, wash me in thy precious of And take my sin newly. A few more suns shall set
O'er these dark hills of time,
I we shall be where suns are not,
the fin person ellins,
Then, O my Lord, prepare
My soul for that blest day: Asiar more atorms shall beat continued by the roley shore, and to roley shore, the shirtes well no more, Then, O my Lord, propare Mysbull for that ealin day;



I ah want an Electric

Pom. Most Extendimeny himsention, Writer 300 Letters am hour, you Know

BOMOTAGE THE ELECTROMOTOGRAPH...A NEW DISCOVERY IN TELEGRAPHY.

Within the past few days, we have had under examination, in practical operation in our office, a novel electric telegraph apparatus, which presents some very remarkable features, and promises to result in the creation of an entirely new and advantageous system of telegraphy. . It is the dis covery of Mr. Thomas A Edison of Newark, N. J., who is will known as a telegraph engineer of the highest ability, and the inventor of a larger number of electrical devices, probably, than any other person living. His improvements are employed upon all the various telegraph lines in this country.

The present discovery relates to that form of apparatus known as the automatic or chemical telegraph, in which sigunle are made and recorded by causing the electricity to pass through paper, the latter belog saturated with a chemica substance, which changes in color when the current acts Lines, dots, and dashes are thus produced with great incil-In the ordinary working of this form of telegraph, the lietricity is sent over the line wire by a key, in the usus manner, and passes through a pag, stylins, or lover, which has so howement, but simply ridin upon the capes, the latter leting moved by a weight or offchwork. No magnet

am armature are used. The salient feature in Mr. Edison's present discovery is

the production of motion and of sound by the pen or stylus, without the intervention of a magnet and armature. By the motion thus produced, he works any of the ordinary forms of telegraph prioring or sounding instruments or relays, and is enabled to sand messages, by direct transmission over thousands of miles of wire, at the highest speed, without re-writing, delay, or difficulty of any kind. More than this, his sparatus operates in a highly effective manner, under the weak-at electric currents, and he is able to receive and transmit messages by currents so weak that the ordinary magnetic instruments feil to operate or even give an lodica tion of the passage of electricity. Topic, when the common instruments stand still, owing to weakness of current, the Edison t:legraph will be at work up to its fullest especi y.

The author has baptized his discovery the Electromate. graph, which is, perhaps, as good a title as could be adopted. We subjoin the following original notes by the author which orplain the peculiar principle that lies at the base of his discovery. These notes, we are confident, will be read with very general interest.

To the Miller of the Scientific American :

The Billion of the Scientife American's.

'In my new pythem of telegraphy, it would seem that the property of the scientife American's that the property of the scientife American's that the property of the scientife American's that the property of the scientife of the property of the scientife of the scientife of the property of the scientife of the scientife of the property of the scientife of the scientife of the scientific of th

reacting dram.
In this experiment, no battery was connected to the instru-ment. This proves that electrolysis produces a change in the

In this experiment, the therety pur produces a thenge in the nature of the paper, in the first of the paper of of the pape

as homeoclorism, the remains, "I super, accurate the second property of the second property

irrent.
The uses of this instrument are many: in fact, it gives an ection new system of tolegraphy.

As no second ry currents are general-d, as with an electromagnet, to prevent the instant magnetization of deep monitation of the iran cores, and electrolysis being ir stends. couraction of the first core, and electrolysis being it results resembled with great rapidity. I have succeeded in trans-erring signals from one ci cult to another at the rate of 610

ferring signals from one of cuit to another at the rate of toy, over the rapid voted per insider; besere it may be next do repeat the rapid voted per insider; besere it may be next do repeat the rapid voted per inside voted per inside voted voted per inside voted voted per inside voted v

uph. Newark, N. J., August, 1874.

SEPTEMBER 5, 1874.]

ht, at last, to Denth's dark We the aid both of Heaven and the doctor

lore : of to besith bethalike are required, is forgotten, and the dector sight-The same of the sa



TWO PICTURES.

The rolling of the Manager My Maggie, my beautiful darling.

My Maggie, my beautiful darling.

Crosp into my arms, my sweet.
Let not fold you again to my boson,
- So close I can bear your heart beat.
What I these little singers been sessing?

One's pricked by the needle, I see: These kind shall be kept from such labor Visin once they are given to me.

All mine, bittle pet, I will shield you From trouble and lator undeare.

Will robe you like some fair; princess.

And fewels shall gleam in your hair.

Those slippers you gave me are perfect;

That dreasing gover lits to a 7— My darling, I wonder that Meanan

Should give such a treasure to me -ten-eleven! we receious Tree flies on a boar I are related It seems but a moment I've been here.
And now, must I say it?—Addon!

AÉTER MARRIAGE ep. Mag! you are besty-l'as tired; e sit in the recker, I pray; weight s-ems a hundred and placty

Pre spoken about it before.

Transt to finish this novel

And theten these bills from the store.

This dressing-gown fitellies the dictens; These slippers run down at the herd; Strange, anything never books devent; I wish you could know how they feel. What's this bill from Mozzan's? Why, sure It's not for mother new dress? Look here it'il to bankrupt ere New Year, Or your store bills will have to orner loss

Eight o'clock! Mag, sew on this teston As soon as you finish that sleeve. Helefu had I be an demonster alsone. I'll pile off to had. I believe

BATTLES OF THE REVOLUTION

in to get his the would be a line. Seven teny dear. In defing bed it and the said of around med around med to said of the said o

Hen.

As this is the Gentennial year of our country, it will be interesting to read of the battles fought a hundred year inner by our forefallers, gray, it is to all the latter than the read of the period of the period between the read of the latter and the latter and the latter and latter a

19, 1915. Ancy closes October 19, 1922. Shall be the war. The Colonius met them with 230,000 confinential and 50,000 militia. The British let loose indians and equally ravage Herstans. The Coloniats had for allies the brave and courteons Frenchmen. The leading battles of the war, those narticularly worthy of celebration, are Concord and Lexington, Bunker Hill, Long Island, White Plaint, Trenton, Princeton, Branington, Sara togs, Monmouth, King's Mountain, Cowpens, Estaw Springs, and York-Three are of National interest. Many of the others are more especially local. The disposition is to celebrate them all, victories and defeats—to recall the deeds of our ancestors, and have a good time generally. Our readers will do well to preserve the following list of Revolutionary battles :

Lexington (first skirmish) - April 19, 1775. Trisalenga May 10, 1775,
Trisomberoga May 10, 1775,
Bunker Hill—June 17, 1775,
Buntreal (Ethen Alben taken)—
eptember 25, 1775.
Rt. Johns besieped and captured
November 3, 1775.
Great: Bridge, Va.—December 9, lee (Montgomery Lilled) - Deer 31, 1775. orn's Creek Bridge-February ton (British fied)-March 17, Sullivan, Charleston-June Fort Sullivan, Charass... 2, 1776. Long Island—August 27, 1770. Harlen Plains—September 15, 1776. White Plains—Getober 28, 1776. Fort Washington—November 15

Fort Morror—October 22, 1771.
Fort Millia—November 16, 1777.
Monmonth—June 28, 1775.
Mynning—July 4, 1778.
Quakee Hill, R. L.—August 29, 1778.
Karamah—December 29, 1778.
Kettle Crock, Ga.—February 14,

779.
Brier Creek.—March 3, 1170.
Stony Ferry.—June 29, 1779.
Stony Point.—July 16, 1779.
Praine Hook.—August 19, 1779.
Chemma (Indians).—August

Saxanual—October 0, 1770.
Charlesdown (unrendered to British) May 12, 1769.
Springfield—12, 1769.
Springfield—13, 1899.
Springfield—13, 1899.
Springfield—13, 1899.
Sanders Creek, Inac Canalea—13, 1898.
Sanders Creek, Inac Canalea—13, 1898.
Single Monthala—Catober 7, 1789.
Single Monthala—Catober 7, 1789.
Springfield—13, 1898.
Birksholdes—November 20, 1789.
Curpens—January 17, 1781.
Gulforn—March 15, 1789.
Springfield—13, 1899.
Springfie

(besieged) - May and July 9, 1781,

For your cornel of the gester acteurs of the made have been engaged the chartest at a cover those former. The constitute along the cover those former. This chartest this past of the countries along this countries along the countries of the coun will. This he named Odie force, Later Crooks the English Chemist, Editor of the Chemical Nown, and discoverer of a device whereby light was made to more matter and therform work; in conjunction with Varley, the work; in conjunction with Yerly, the colectifian of the Athalian; cable, electrician of the Athalian; cable, forestingted the co-called spirit, marie treations by sommer of scientifian systems, spirates, with the loop of discovering a new force to account for the supposed smallestations. They were pertially supposed to the force and panel the supposed force Paylor force. Mr. Shomes A. Ethoog, of the city, the reliable of the contraction of the co Mr. Shouma A. Edisson, of this city, the well-hungen sheltchian, has been congaged for some dimental methods to solve the planeaucons of the dissipation of the electric and magnetic occupy, which takes place in the use of an ordinary observed instrument. Most deco-firming before that it passed off in the for-fartiday before that it passed off in the forof heat: Mr. Edison is now confident that he liss solved the mystery, and in so doing, that he has discovered a new and more poworful force than electricity or magnetism. He is now nationed that the electric force which is allowed to place oil without perform-

which is allowed to hase of without perform-ing work in the magnet of the olectic, coils on the telegraph, partitionests in daily use, madely densify conditions, passed of "in the form of smellion (orange matter) united itself or dry their foce heretoters known, This force minufests treef itself in the form of a paquint kind of light, which can be transpeculiar king or ugat, whose one or exe-mitted over uninvasted metallo conductors of todedwate length, like a rul road trace, or they cut, mains and bipse i the streets. From "approximate made thus far, his Maloon is autisted that he can, by means of this new force, transmit messages seroes the Atlantic, through an ordinary uninsulated felegiaph wire submerged in the ocean.
The generator of this force consists almply of any electric magnet placed in a circuit with an interrupting telegraphic key, and galvanic battery, and a piece of metalic cadminm brought anywhere within the influ ence of the magnet. If the cadmitim be connected by means of wire with any other mitalic substance, the gas pipes in a buildtuk, a railroad track, or to the end of a tole graph pole, sparks may be drawn off from the other end. This fact has been attested by an experiment upon 75 miles of wire. namely, from this city to New Brunswick, from there to New York and back arole to Newark. The force producing these sparks seems to be of an ontirely different nature from oither of the two agents which Produce electricity and magnetism.
The earth has no influence at all upon it,
and glass and other substances which are
non-conductors of electricity, are gift conductors of this new force. Wires charged with it have been tested by the most delicate

gold-leaf electroscope and mirror galyanometer, and sil the other known means of testing the presence of electricity, without exhibiting any sign whatever of the presence of electricity, thus proving that it is neither inductricity, thes proving that a so high tension tive electricity, either of low or high tension Up to the present writing-four days after its discovery-the only form of lustrument deviced for indicating its pressure is one dopendent whelly upon the indications of light, but undoubtedly instruments will be discov-ored whereby it may be transplitted into mo-tion and made to perform mechanical work. This discovery has been estimined within the post few days by several well known scientists and electricians, and the Chief Examiner of the Patent Office, and all are satisfied that it

is one of the most important discoveries of the service of Lidson, is builty supported that the deliver of the new force, and he



REPUBLICANS WEAKENING.

A Wife's Secret Werth \$110.

Mr. and Mrz. S. A. Fuillips, of this city, whith visiting the Contended Behildred, white visiting the Contended Behildred Behil A Wife's Secret Worth \$110.

Amount artificity of feedings by the control band on the first policy.

How to Secure Mina—Here is some benefit worked to the control benefit of the control ben

A first point of the control of the

HUSBAND WAS SNUBBED.

Describe Surface Management of the Surface M

"God, the first garden made, and the first city, Galu."

Golden Milence.— A pain forgotten in a pain control in a pain control in a process of the proces

A Town 1992. The common control of the control of t

FLEETING JOYS. TEMP (1906)

Timo goes in for funcy freeks,

Many a toy in likes to play with;

Notice have to lines our checks,

Many at the lines our checks,

Many with goes to make us gray with.

Posture council to south our interfal

Research of the lines of the l

Supposing you, by facts decree,
Lore a girl and inn to great her;
Lore a pirl and inn to great her;
Lore to minute sette to be
Leaden-singed until you meet her?
When the hour arrives at last,
And all care away you benish;
Then the tyrant travely fost—
Loppy moments quickly vanish!

Descripts this cartily bell of cyantil or it make as eayer;
But the correct recease in the cyantile will make as eayer;
But the correct recease in the cyantile will be compared to the cyantile will be considered the cyantile will be considered to the cyantile w

Happy mements by two quarters in Nover mind, we needed t gross : Tean-drops, shower-like refresh was After all, we're bound to own Jor's like as sweethers—precious. Cast away regress and sights. Though control when the highly, about moments that he prov. Area though they washed quickly.

AND 80 Yours. Too I—A little free-yward of fellow came up to his mother, contains said. Wholer, I awe concelling non across the historic flow concelling non across the historic flow this marry-carlindly was resided at the approxima-tion of the contained of the contained age exposed if was a sunkeer a way and also convent in the contained of the con-tained of the con-tained of the contained of the con-tained of the con-tained of the contained of the con-tained of the c

one of the happiest imprompton we have the same that the happiest imprompton we have testing the width is the Glowling, which is said to have actually occurred networn and of gentleman and a young street on the same that the s

"And if from glove you take the letter of Then glove makes love, which I present i The young ledy paused but a moment, and then replied, amiling: "And if from Pape, you take the letter p. Then Pape makes up, and that won't be for man

A Gallant Old Gentleman.

A fallant, 600 feedlessus.

Not long sept, on a feedly copied seet on trability, a hely on the epopula above the subject, and the sept of the sept of the sept of the sept of the seet of

Quarrels.—No lovers' quarries can exist after markets. The two people who and ever vigories can be proposed to the people who and ever vigories. The two people who and ever vigories can be finded as a strong one, and affection may return a bond and bardel billing. The levest any such, that is with inspectaneous. It may be impossible to a look and bardel billing. The levest any such, and it is with inspectaneous. It may be impossible to it is such inspectation of the control of the

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manifest generation—— a value woman in the band of a formal to be very not a store to be a formal to be very not a store to be a formal to be very not a store to be a formal to be a formal to be very not a formal to be a formal to

"The screen if you touch mot" exclaimed a pertuine a touch mot" exclaimed a pertuine a touch mot exclaimed a pertuine a touch mot exclaimed a pertuine a touch a pertuine a pertuine a touch a pertuine a

"I'll scream if you touch mo!" she cried out "Fit scream it you touch mor" she cried out once more, Ho said, "I fain't near you—I found it a bord." She quickly subsided, grow touder to view, And whitepered quite codity. "Il servant till you do."—Beston Trucciler. ---

-A Sunday School Teacher was telling her class about Nebuchednezzar, how the Lord turned him out to grass, &c. The thing appeared foggy to one little fellow, who, after coglitating on the subject for a few moments, said: "I say, teacher, and did he give milk?" id he give milk?"

Tourr (who had been allowed a sent Toustr (who had been allowed a sect the stable on the occasion of a respective property on the territory, and is secretarizing the engraving on this tearnoon, which is odd—"Why, medier, these spooss were on Austranes support-datio the other night, leaves are the second of the secon

THE PINAL VOTE. The bill was then read a third time and passed—Yeas, 47; Nays, 17—by the following vote:

JONES (New ., Bop.)

KELT (Dans.)

MCDISTAL (Rep.)

WILLIAM (Rep.) ALLODE (Rep.)
ALLODE (Rep.)
ALLODE (Rep.)
BAYANE (Ben.)
BAYANE (Ben.)
BAYANE (Ben.)
BAYANE (Ben.)
BOOT (Ben.)
BOOT

The state of the s

"Jake," said the blushing damsel to a lover that is a father han ferbidden the houte, "I don't care to you're feet are ldg; I have you just as much." "Wall, alke, flood; is much as much." "Wall, alke, flood; such as had a word and a such as a word of the smaller; I also your dail's were a little smaller; I also be don't not be also of more condident, you know, about any jug."

in the same of the "What's your name?" said an officer to a young colored and who joined his alon at the Cape. "Algos lay, Shr." "Water were your born!" "Whee's hers at all." "Water's bern at all!" "No. Shr! was washed selvor in a slow." manager - -

"Why do you use paint?" saked a violinist of his daughter; "For the same reason that you use resin, papa." How is that?" "Why, to help me draw my beau."

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LANE (Drm.)
LANE (Drm.)
LEAVESWOOTH (Rep.)
LEAVES (Dem.)
LEAVES (Dem.)
LEAVES (Dem.)
LEAVES (Dem.)
LATHOLIC (Drm.)
LANE (Drm.)
MACHY (Drm.)
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MCPARLANE (Drm.)
MCPARLANE (Drm.) THE SPEAKER (Dem.) THE SPEAKER (DEM)
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JAVE (H. 1904)

JAVE (H. 1904)

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JOHNSON, JAVE (H. 1904)

JAV EARLON (Born.)
SATION (Born.)
SATION (Born.)
SAVELSE (Born.)
SCALEN (Born.)
STALEN (Born.)
STALEN (Born.)

SOUTHARD (Dem.)
SPACKS (Dem.)
TAKENS (Dem.) SCREEK (Done)

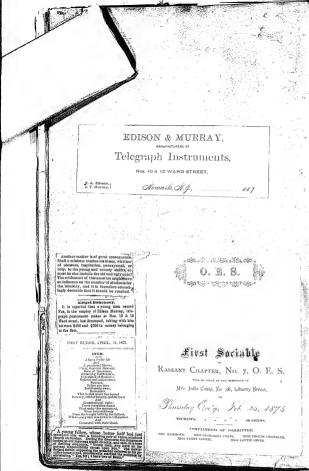
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PARTE, Ind. (Rep.)
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LAT CALDWELL ABACASMON (Erps)
CASMON (Erps)
DESMOS (Erps)
PAUS (Erps) (Ignitial (Sep.) Harrette, ... Harrette, (Sep.) Harrette, (Sep.) Harrette, (Sep.) Home (Sep.) Higgard, (Sep.) Higgard, (Sep.)



request the pleasure of your company .. at the Marriage Coronway of their daughters . John & C. Chandler . Thursday ovening Doomber 210 1871. at right of hich

Mr. Y. Mrs. R. Elmonderfe



A CALBUTHAN at Chriman, O. was away from bridge upon the climade burger. He returned in the overall as the country of the coun Hannel 1800—STEERS — drusk—drusk— Mas. Vas. Corre age that all one of her prayer-movings a negro broder pray of 1.70 Local, and dy rapid to jit doe wings on state interests a factly int skin may fly troo-de world preaching the creatastic gapagi. An one notical, "Local circo expansion for shannlers, one, or the preaching till not have effect, for shall fly pushed down." for she'll fly upsaled down."

The collect of a Miceleshpel newspayer lately went
out with a plated in his based for the purpose of visialentity his character for truth and veracity. It is not
stated whether he succeeded or not; just how was seen
through horse in a uncellarrow, with a blanket over
him, as quiet as a hamb. "Joun," said a schbolmaster, "you will seen bon man, and will have to attend to business. What do you suppose you will do when you have to orbo ters anders you learn to spell better?" "Oh, in-newered John, "I shall just easy words in lieur.

nanwered offin, "I shall pit easy words is then."

Not long since, at Sunday-school, the teacher, after trying hard to basperso us the missing of a class of satult boys the sin. of Subtath-irealing, attal, "I should be sunday better than may other sky?" when the sand-real loy in the class answered, "Y on bot your bond it is." DEAR Jame is good, my darling Dan, and was extended yesterday; But the wind upon the tounderess, And blow her suches away. "Willer time is it up there where you are?" wild a limit upstart of a fep to a very tall lady with an un-brelle. She hit him on the head with her umbrells, and reptice, "It has just struck one." An Indiana man, with a turn for sintistics, calculates that his faithful dee; ten years of new, has cost the will, in for hash, and \$15 for Hogner. The deg is now for sale. Proc., ten costs. Ax old indy was nessiring the beautiful picture allod "Sayed." "It's no wessier," said she, "that he pour citid fainted inter, pulling that great degree of the water." A vorse man charged with being hay, was asked the took it from his father. "I think not," was the rolly, "Father's got all the laziness be ever had." "Brony, will you take some of this batter"
"Tank you, ma'um, I belong to the temperator
ciety—can't take anything strong," replied Digby. "Do you like the plane?" some one neked. Three-thile thinker. "I prefer it to the guilledize," was he reply of the pool.

The Old-Posy Ma

The Old-Posy, Man,
HE was a new, old-foay man,
And spree old-foay man,
And spree old-foay was:
And railited against the rections speed
Of those fact unselors days.
He once could travel beforery,
And stop its friends be subjected.
And stop its friends be subjected to the stop of the

But twee they maked through by them, That good off our first the pre-paration of the pre-paration of the pre-paration of the pre-paration of the pre-band any twee theory and the And to their rank steen the triple. And to their rank steen the triple. And to their rank steen the triple. Well as sense-by-thread that towers for this time is divery pay. Used in sense-by-thread that towers the thinks it down't pay. We have some even to think our was the some even to think our the triple of the pre-tained to the pre-paration of the pre-tained to the pre-paration of the pre-tained to the pre-paration of the pre-tained to the pre-paration of the pre-tained to th

No more the sitters spin!
The rost print of colors time,
sundered, were draser made.
Then these, the lock and benefit shoots.
That grew up in the sancte:
They fill their mather's brang work,
And rose in the warry hand;
And consoliumes, los., if betchers timel,
Could help to do the mark.

The Wife of my Levrly House, Volt may best of your loaneds treasures, I of the receives and he through last in not exchange her a worst of these, The wife of my long loane. The wide of my lowly losses.
The inthes of life are secret to fight,
When translessed stands to it alone.
But it were not for the se which losses.
But it were not for the se which property
from its power in the first love of friends,
which is power in the first love of friends,
but the first love of friends,
but the first love of friends,
but the wide of my lower to the love
to the wide of my lower to the love
to the wide of my lower to the The blessings of God are many and great, but greatest of thom all? I web, It that pure, mailtoyed freamer, 'me wife of pay lowly beame.' There there we tall, tegether we reap, we share the largh and the grount As head in head, we disch life path, or and the grount and the grount the ground the ground

AND so, we have not here again, love;
And he we have not here again, love;
And with it the heart, new strickers.
So prosed in the days of yere.
I knew and how much that I loved you,
When that word was apolen by use
That sundered our lives list night, dear,
And level; yet over the nex.

And tent you over the sea.

Here I have set all alone, fore,
in the End fresh tours of spring.

Yours the blacking filled it a twingle
with the source that it need to sing.
In the polices full of that sufarm.

That twingle my leave the delibert.
Her over a score could find a police.
In the calls of the failing night.

In the calm of the falling night.

In the walked long by this part, here,

Yor a gloque of the days of old,

You a gloque of the days of old,

You the stemests of assumer calm down, here,

On their wings of anther and rook,

Of their wings of maker and rook,

Of their wings of maker and rook,

Of their winds determine free;

Off their bridge have been free;

There was given above, 'take the branches,

Hot more a glocula for my

There was diver amony, and the braceste, You thought the my beart was cloud, brown—I a turn that I general as the mind a certain of the state of the

Could help to do the man's.
Their dresses, made with easy fit,
dive not a pain beneath:
Their hearts ind ample record to beat,
Their hearts ind ample record to beat,
The many terms of this, with waters
Too much enterpressed and shirts,
When, if they do not disalpate,
Are very often 1984. Ale very done (ph).
Then be too fashen thearf their forms,
But grow to coursely size,
And be all bespecture on their brows
And be all bespecture on their cyce;
And packing from their cyce;
And packing the strength its gifts,
that thength, with reverse point,
That they were besuitful casesie,
And they were allowed. Trip lightly over trouble,
Trip lightly over trouble,
Trip lightly over wrong,
We only saids grift housile
By develing on its long.
Why cleap most hand on fightly?
Why sight or blessoms than a
Why only for ones massignly?
Why cleap to test by linearly?

And alony were statistics, the state of the property of the pr Trip lightly one cornor.
Though all the day be dark,
The san may shipe to-morrow.
And gally sing the lark;
Fair blook fare not departed.
Though ones have have fael;
Then never be down-hourfed,
But look for Joy Inteed.

Trip lightly over solutes,
Stand use to rail at shoon;
We've pearls to string, of glodness,
On this place of the teath;
While stars are sugarily shiften,
Encourage out within the cell,
Encourage out within the cell,
But 1000 for joy, basical. -

Parting Words.

IT was a safety feather occur.

The man as safety feather occur.

The man as safety feather occur.

The man as the safety feather occur.

And effect valley, grove and left.

With partial, treated fine faith.

No sound was heard nave where a bird.

Was swittering in its meet.

A light has a faithful fire clock.

Byon low comber's breast.

Upon her moller's breast,
"My oblist my clably"—that sucher's voteo
Was atranscry sed, and low,
As thesely that man woods berealte the love
As the sed of the season of the sed of the
"My here beloved, the sacronn's deen
Will take yes freen my side!
The re! there! don't cry, then-wrollen oyes
Look dreadth in a bride.

There's based dank on't described in the Abdell Abn of Learn on an or Abdell Abn of Learn on the Abdell Abn of Learn on the Abdell Abn of Learn on the Abdell Abn of Learn of the Abdell Abn of Learn of the Abdell Abn of Learn of

the know you've saved a cent.

"Ah, gaves and hely are the yous
that sead a weatan's factor?
And many see the caree and wors
and many see the caree and wors
and many the wester and
and the see the caree and wors
The best of makin will lie.
The best of makin semerimes growl,
the best of saidnesses semerimes growl,

this best of salice arry.

"But writely window, after all,
Is bester learned tiess insight,
For men are simplery fish, any dear,
Then take in real time comput.
Then take in real time comput.
You've best my loy and reflecting.
And our it is furname mostler know
That his or but in the first and you've

That his or but any or one of you.

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The property of the first and you was a first.

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Feel line a bain our next wany symbol.

By which have ever, for you come to return above,

Tenders make life, and you over frequency.

Tenders make life, and you want frequency.

Midpid and could in inferiory because

Midpid and with its next legal coulding.

Only to set this wave hoppiness recall.

Over they would close to make you want to be a seal for a manager of the large property.

Oner stateon, and tying there— Dood, doub beauty—self, golden hair; Hands like the tily, folice and fair— Only stateon.

Only stateon—Bill bloom tears; Can God want stricts of such tender years, Who bare weekight no riproces from more and frame? Only stateon.

Only "sixteen" on her cofin-lik: Must the enony hale and awree lips be hid, And we stand holpless, nor dard fachia? Only sixteen.

Only states mouth, her hooks He here: She is yet but a school-girl stretched on the bler, A watest child-woman, hore desthiese foor! Only states.

Only stateen and I loved her! -ab God He knoweth what only, I know; And I never dared perso, her aweet Hes; so! Only stateen.

Only sixteen, and lying there— Dead, durch beauty—self, polden hale; Hands like the lily, folded and fair— Only sixteen.

Only station.

OF W. W. MALATE.

A secretary index types a very contypes with the heat of Personnel

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I. Womber, Why.

J. Womber, Why.

J. Womber way this worid's good things

- Should fail in receive good things

The point should believe of all the 1978.

And other course from the course of all the 1978.

I women fail in gaths soon poorie fread, when the point in gaths soon poorie fread, of the point o Or obside that gather overhead.

I wonder why the trees that hang.
Be find of mectous freat about grow
Only where some may reset and way.
Why where some may reset and way.
Why sho there from an it towers those for see
For others and the first profit of the first profit.
What others this the trees around the way of the profit of the prof

"While others till the barren ground?

I wenter why the hearts of some

I writer with key and impriment.

With other bloom likely to the way.

Uniformed with a liver to me way.

Uniformed with the try of reserved.

Wouthy with to try of reserved.

Stands in we be mediated with a new,

Table others way from more till himpy.

Table tearts so created with sorter here?

Their varies so created with serves here?

All, well: we may not know, subset,
The whys, the waterclose of credible
The whys, the waterclose of credible
The waterclose of credible
And waterclose of credible
And waterclose are disposable
And only be any know the end.
And sowing the me many her strong,
And sowing the me many her strong,
Though before or, manking in many send.

All only to the credible of the credible
Though before or, manking in many send.

All of the credible of the credible of the credible
Though before or, manking in many send.

All of the credible o

This has triumph of observables. As D. Binnes.

This has triumph of observables. As different write to help adchrosed by revisioned to express a light process of the proce

THE Schularky Registor contained no editorial sade only used been been for four days, on attended for some contained and the same contained for the same for the same

talls on 'one. This occurrant':
"I pursuame," and Sim Hors, entering a hard ware store, "you don't in all sores of neith." "Cestable," replied the clock in alternations. "Then will troube you for a peans of toe anis." An amorous awain declares he is so fend of his girl that he has rubbed the skin from his nose by kissing her shadow on the wall. A hopsiess case is that. Mitwauere wision: "When you see a young couple late at night on the lake lank showing and liding each other, just let 'em alone. They are only fooling." The Chicago Tribune prints a poem in which the writer wishes that she had "a latest full of sweet yearlings." The authoress says the printer who are it up is a colf. Tim following is said to be a popular song in Dalawit: "Boriston, when I'm hungry, Walsacy when I'm dry, Greenbacks when I'm hard up, and Baaves when I tile." Jose Realings may: "I am violently opposed to smint spirits as a beverage," but for manufacturing purposes, I think a little of it tastes good." A For in company, wanting his stru-out, "Where's that blockbeard of mine?" shoulders, sir," and a indr.

A GENTLEMAN, endowed with a great amount or beass, desires to meet a lady presenting a corre-sponding amout of the.

THE LITTLE BOY THAT DIED The interest pleas we write by John Ching A with the property of the property MY AMBUTA D. ROBERSON. at a comp-fire in the m to the strong st I Am all alone in my chamber row, And the midnight hour is near, And the figot's crack and the clock's dull tick The rate rather a career and eve And over my root, in its solitade, Enect feelings of sadrers glide;
For my heart and my eyes are full when I think "Man wants but little here below, Nor wants that little long.
"Tis not with me exactly so-Of the little her that died But 'tip so in the sone.

My wants are many, and it told
Would manter many, a searc;
And were each wielin unit of gold,
I still should long for more. I went one plobt to my father's bucse. Went home to the dear once all, And cottly I opened the garden-pate. Tyo got my junds, and that's bout all : And rollly the door of the hall. The rost promote and that's bout The rost promote and wife, Loft behinds in ageneral brawl-Right glad Lkept my life. We work as seems and to seed her son a I want (who does not want?) a wife.
Affection to mid (air.
Ta soluter all the loves of life.
And all its joys to share;
Of tempor sweet—all yielding will,
Of firm, yet placed mid; dy mother came out to meet her son : She kissed me, and then she sighed, and her hend fell on my neck, and she wept For the little how that died You might not think a rough like me And when I cannot on the importal facture Had ever level, and lest And thought what a lovely child he had been,
And thought what a lovely child he had been,
And how roon he meet dray,
"O Death I thou lovest the beautiful," But there you're off a print you see-With all my faults to love me still, With pentiment refined. I-was fixed up oner, I was, you bot; And a Time againees and runs, And Fortungills my stere, I want, of disagliters and of some From eight to half a store, I want dus! can mortal dure In the was of my spirit I cried!

For spankled the eyes and the forehead was fair

Of the little boy that died. And lots of friends we had, you know, All smilin', and sweet-lipped.'
As long as I had the chink to show.
But when I broke, they skipped. Agein I will so to my father's house-Such bliss on earth to crave?)
That all the girls be cluste and fair,
The bays all wise and brave. Go beene to the dear once all—
And sadir I'll soon the curden-rate. And eadly the door of the hall : And easily the droor of the half; I shall meet my mother, but nevermore With her darling by her side; But she'll kies m; and sigh, and weep again I want a warm and faithful friend That's just the trath of it, you hear so; As long's as you're rich as krouf. Your friends ill freezo in, good and free, And then they'll just skin out! I want a warm and faithful friend.
To cheer the adverse hour:
With ne'er to flatter will descend,
Norghend the knee to power;
A friend to chibs me when I'm wrong Fee the little boy that died. I stall miss him when the flowers come O, I've been there! I know 'em pat-My figurat soul to see ; And that my friond-hip prove as strong For him as his for me. In the garden where he played;
I shall tales him slove by the freeble,
When the flowers have all decayed.
I shall see his toys and his empty chair, Just how they come and go,
When Hofebrale this, and Colonel that,
Are on your list, for show; I want a kind and tender heart. And the horse he need to ride For other's wants to feel:
A soul recure from Fortune's dart,
And boson armed with steel. As I was kayln', a home I had And they will speak with a silent speech Of the little boy that died. A wife, and buby, tec,
A little serub that called me dad,
With eyes of the bluest blue. I shall eee his little sister again To have divine electionment's and And mingling in my plan Submission to the will of God With her playmates about the door, And I'll watch the children in their sport Well, in my biz I wanted men., I had to make a raise: With charity to mon. As I nover did before;
And if in the group I see a child
That's dimpled and hughing eyed, I gave a mortgage; when that was done, It ended my bast days. I want a keen, observing eye, An over-listening car, The truth through all disguise to any D'ye suppose them money-grabs usuald wait' I'll look to see if it may not be And wisdom's voice to hour: D'ye suppose them money-grate wanted A month, all on the square?— No, sir; they just present if at date, And cleaned moont right there. The little boy that deal A tongue to speak at virtue's need, In Heaven's sublime t strain. And lips the cause of Man to plead And never plead in rain. We shall no home to our Father's house... No stant go nome to our Father's house...

To our Father's house in the rhies...
To our feather's house in the rhill have no blight,
And our love no broken ties; And then that child began to pough,
And died; and what was worse,
My wife, in pride-and shame; went of
Leavin me to swear and caree.

24 4 4 1117 est I want uninterrupted health We thall reum on the banks of the river of Peace. Throughout my long arreos,
And streams of never-failing wealth
To scatter far and near,
The destitute to dothe and feed. And bathe in its bilested title,
And one of the joys of our heaven shall be
The little boy that died. Easter me to rever me cappe.

Their plant to the plant to be a possible per release.

And plant to the plant to be a possible per release.

And plant to their plant to be a possible per release.

Their blant has with their deed population.

Their blant has with their deed population.

Their blant has presented an internation, but the per relation to the per relation to the per relation to the per relation.

The property of public per relation per per relation to the per relation to And, therefore, when I am sitting abone, Free bounty to bestow, Supply the helpless orplinn's need And soothe the widow's wor. And the nathright hour is near,
When the farne's crack and the check's dail tick
Are the only sounds I beer,
Oh! aweet o'er my roat, in its solitade. I want the genius to conceive,
The talents to unfold
Designs, the vicious to retrieve,
The virtuous to uphold;
Inventive power, combining skill, Are the feelings of redness that gilde, Though my heart and my eyes are full when I think Of the little boy hat ded. bersevering soul,
Of human hearts to mould the will
And reach from pole to pole. Scene in a Horse Car. An Irish woman of tremendous proportions, on her way to Washington market, with a menrer than first country and nover more dis-I want the scale of power and place. that than second cousins. Two of the first on her wife, to Washington handres with a conne to the control of the washington number of the
man of the control of the washington of
man of the control of the
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man The ensigns of communit, Caurged by the People's unbought grac To rule my account. large market basket, was unable to obtain a mentioned lately landed in this port from one mentations likely banded in this pret. From one meta-tion of the termination of the termination of the termination of their voryage, they were assembled in matter with their feet under both of the termination of the termi of the British steamer. Destring to celebrate To rule my native land:
To rule my native land:
No excess or sceptro would I ask,
But from my country's will,
By day, by night, to play the task
Her cup of blies to fill. I want the voice of hencest praise. To follow me behind, And to be thought in future days. The friend of homan kind; That friend of nomin sinu; That after ages, as they rise, Exulting may proclaim, In choral union to the sides, Their blessings on my name. These are the wunts of mortal man-These are the want of mortal man-I cannot want them long— For life itself is but a span, And carthly bile a song, My last great want, absorbing all, i is, when belieath the soil, -If there is anything in the world that And summoned to my final call, ... The mercy of my God, will cause the average female to forget, for the time being, her pull-back, it is the mania A works in Phenoug, with fun-bling in, her husband's inside cost be-posed for a suspected love letter and say him reading a short line previous-ly-cooleducity discharged his reorder-tingers. Now, Pittsburg insubands's thought in the control of provider in his same your consumers, for the control of the control of the same your little with the proposal days better that they be presented their countries of the control of the con-trol of the control of the control of the wives less in this tile ploy person and their countries of the control of the con-And oh! while circles in my veins, for gathering Autumn leaves. It is now the And sh! willse tiroles in my veine.
Of lies the purple stream.
And yet a fragen an small remains
Observed fragen and small remains
Observed fragen and small remains
Observed fragen and small remains
Stream of the common property very sesson, the weather is perfect for woodland rambles, and the foliage just turning to those beautiful tints of pale lumon, burning ermson and mottled slandes of color quite indescribable. But "arn't they perfectly

THE MAN OF PARIMANE.
THE WHIST AND OF PARIMANE.
THE WHIST AND THE MAN OF PARIMANE.
THE WHIST AND THE MAN OF PARIMANE.
THE WHIST AND THE MAN OF When my Old Hat Was New When my Old Hat Was New, American January, American January, And let to tree while. While I some you a verse or two Miles I some you are two and the many the period downs of Miles. And changes next few while they worked, When my sid hat was me the whole thing worked, When my sid hat was me. This hat was rapic in Seventy-six, in Prints hids town. When brave next swore they'd bend no more flatter in the market from n. Then patriothem was no about, But so a strine abone: And Freed on from each erag and does Freedmand the land her own. The State and Stripen few peoul and free, And no larging strongs. where note old best was tires.
This has was worn in Now Oricins,
You sell requestive when
The Hitlish less was held so from
That proceed rose melling.
The proceed rose melling.
At the resell know hours on the conPer acoust hearts were transparent built boys,
When darkstee's best was now. When ducksor's but was new.

One payinds and still findshorpast,
Profession Procedure's manue,
When he make a pide and live in style
is all their little ciented
by the little procedure,
When he may be pide and he pid sade a stake,
When he was no pide are he pid sade a stake,
Famelt we their have such a lot one
When he was to be a lot on the
When me was to be a lot on the
When me was to be a lot on the
When me was to be a lot on the
When me was to be a lot on the
When me was to be a lot on the
When me was to be a lot on the
When me was to be a lot on the Columbia then had gallent ross.
Adorned with victors bays.
When is thereon incube and Jackson fought,
the would extend with praise.
We had no "Circidia with praise." Oct. We had no "sheddy" in these days, instinction was not benefit: No pulse then clubbed workingsen war speaking what they thought. No ball page littered the White House When Washington ast there; Fact houses ran at Lealington Our country's few to scare. But two warshears we'll make a change, Hat two years beate we'll make a costor, And then, Twren nor and you. We'll face the floors like wint they were When my old but we new. Thomas F. Markin

The Language of the The Language of the Hear There is not heard about A. Bet is not heard about I. In surred sauguage here held. Not on the biasy cound. The heard in success places the source of offension! The self is auction face. And irreliability even. No art of men can truth us This at cret speech of love! Though love its tosses may r

TVIIEN adverse tempest's chilling rain .

W. Brats baseley, could shows,
And clearthied tops a prove false and valis,
And clearthied tops a prove false and valis,
And changeful factores frown,
Fires as a rock 'mid occan wards
for hallowed manueling he-My heart to attl with thee,
In joy or secrow, this or mee,
Whatever led be notes,
Try tenen after shall brightly glow
Writin my spirit a steries,
Construction sever is a gleen;
Ob, heart to heart in earth well be,
And face to face in heares.

7

A senterwise wife, being very ill, called her his-hand to come and set by her bed. If This is a sail word, any clear, "said the wife, potentive to a coloridat the man. "Were it not for you, I said," in the husband, sho the my day, "expery responded the husband, some you take I would into fee with year happings "the year man are to the feet of the coloridate of the year man and the coloridate of the coloridate of the words and the coloridate of the coloridat FOR THE LANDHAM. TO JULIA. When down October's hiethday many With distant October's birthday me Each year, snew I take the cross field hild upon my heart when first I streamed for thy loss.

with the state of I know thou art not wholly gone Thee, Jolin, from my daily life I miss the music of thy voice, Thy brare, true heart I leaned upon, The love for me, so warm and deep, That in thy dear even ever shere Though the A. Y. Sond allow house belong to the

"Them it is," said a man pointing out the cornet to his companion, "right there where I am pointing. Burk you see it!" "No, my friend," responded the octor, "Like Washington, I will not its, I will swear I dow's see it, and I dow't believe you do, citier," Zagren in the light of Harrier Semplimes o'er the digiting stream Formelimes o've the dividing stream.
Thy suft hand seems to reath me now.
To amouth with its old, basing touch. An engineer on the Western North Carelina Bail-road shoused on crowd of rustles who had suthered to see the first train of care come is. Past down your undrealist you'll seem the engine of the track?" The undrealist ward bowered at outco.

Armin the deut even in my corn Are looking, with their olden light. Unchanged, I think they keep in beaven The look we know, screnely bright. Whenever there has some to me

A day-on hour of happiness.

I say-ony darling where she's gone
Will know, and will rejeice in this. Well forms. India about best to The tiver whose dark sesters sworp that paths between, still match and ward With third and here around ma beau

When you crossed to the other sole. Wall for the till at a suith. Vinit for me—this at evenions Life's sun is sinking in the west, And then, tied grant that we cour brown Tamber His ciscost red. Cheman, Anne.

H. W Baile we know at rooks above.

The transferred the leavest of title.

We peak through the leavest of title.

We have been the leavest of title and the leavest of title.

We can only see this to care and the strikely.

We can only the third the leavest of t

May write in the prisence of each . How little we know of cand other! That we man of cashion, who someway and a sameleash. And ben't to low skillens and a sameleash. And ben't to low skillens and a sameleash. And ben't to low skillens and a sameleash of the sam For the dark strates of clause such a lines little we know of earls others of search ten little we know! We age all weak when side were All saids of the end and were. There has the class of the clause of the For the check then grid in our closer. For the check then grid in our closer. May exten day to brought to the lit-

"Supermone of the content of the Holder's American Content of the Content of the

For You LASTONARY. Fuggered on occasion of laying the corner stones into Church. "The corner stone of the University relytering Church, Newburgh, N. V., was label tell lasting extragator, Fullary, September 13, 1871."

in olden time this plot of earth, To Child was freely obers And here, for more than eighty years, Pealed to our God has risen. And large spain, on this blost property We beild to Him a tower;

And now wo lay the corner steer, In this blest setum hour, Let years be given to these walls. May selute here over dwell; And in this termin over find Such grace as none can tell.

lamp.

Some men never less their presence of mind. In Minewakee inst good a men throw his mother-in-law out of a window in the first yeary of a burning bailot, far, and carried a feature bed down stairs in the arm. Orieinal,
By the River-side,
By the river-side,
By the river-side wazelered,
When the excellent previous theories,
And the stars were in the sky;
Swyet were the seeds he walsprendIn my one they seem to heSwyet-far the king you gave me,
As we wasted along the bat.

A Partiest living in Thuswille, who has two or three very courtable girst, played a notice on his front deer into other sign, which read, "Shet down, for thirty days. No stove in the parior, not but one

As we waited along the lea.

By the river-ide we wandered
In these happy ileys of yore.

And he turnisered weeks of scenderi,
As we writt along the above;
Arbotold on of a contact,
When he will be a contact,
When he will be a contact,
Date in the week would then to do no.

20's his week would then to do no.

20's his week would then to do no. Pur his week weekt then be done. To the fair river-side we have into Yor he said, in being and, I would so often, often wander. When these rippling waters flow; And I forced to hear their aucunar, Let us in the rippling water flow; And I will often be beyide you. When the stars are in the say, when the stars are in the say. when the stars are in the sky.

New by the riser-side I wannier,
that I wander all alane.
And often Halau in the waters,
list their manusar is a moun.
For I am situate and warp wailing,
I am longing so to go;
Per I am with that I shall nevel blan,
Where Life's waters ever it we.

If We Know, it was and hearinghe I while the sed some the sea and hearinghe I willing the sed simen the resilient of the crude tests the wavenered. If our filter crude tests the wavenered, while we wave tests in the crude test with the crude test was the crude test with the crude tests and part our shape to come from any TC We If now For our slips to come our most next.

For the come the hardy singues,

Joseph against the white-remains,

Joseph against the white-remains,

New Interface to a same,

Interface t

PAYST.

For our respite by and by.

Let us gather up the syntems
Let us gather up the syntems
Let us keep the wheat and roteCasting out the therms and abidit
1st us find the wrent-of consist.
In the let along of traday;
With pulled hands remarking
All the letses from our way.

The Vest Peckets. A young man from one of the suburban disin to one of our tailor shops getting tricts was measured for a vest, the other afternoon.
"Married or unmarried I" queried the morbaut, after taking down the number. "Unmarried," said the young man, with a

ush. " Isside peckets on the left hand side, then." observed the tailor, as if to himself, making a memorandum to that effect.

monomorphism to that effect.
After a monomic pause, the years man from the resulted inquiried: the present man from the resulted inquiried: the state of the content in the minds possible of the monomorphism and the thin distriction possible as a band state, "All my deer sin," observed the taller, with a band state," and the difference possible as a band state, "all the difference possible as the state of the state, and the state of the state o

THE DEAD LITTER. can it hof Ab, yes, I seed a thirty years and better The thirty years and better fines Many Morans sent to me This mostly, many letter. A pretty hand is the couldn't opelly, As any mean and a vote it; Any twenty, as it promiser wells, A pretty sund that wrote it? How calmly now I view it all, How calmly now I view it the As mentry unclearly support in The Liller, the walls, that I recall, And then—the potal changes is given and it least basings— Support in I card basings— Just our-such supported as the Zala pitter out in yourget Ti The love that wrote at such a rule The lorn that wrote at 19th a risk (Er Jave) it was a stop one it Pive issuinted Lodes (I raiculate). Was certainty a drug one. And yet it deben of riow decline—Fermus suspices since it is it. You quite formation if it is it was made or Many's disting killed it.

At less the fatal message rame;

"Bly letters—picute ratum them.
And years—of contacton with the
I'll or of them back or bern them.
Two presums tools, I must allow,

And the slope remains a the slope and the slope and the slope remains a slope and the slope and the

whom it may contern :

OBITUARY.

... Pell'usion in Joine, at the close of the day, June 18th, 18th, dangliter of Jackson D. and Sorals Jay, aged twenty-six years. Barely had It been our lot to record a death like this. In the morning of life; "in the glow of personal attraction; much beloved by a large circle of friends here and cleewhere, ship was called to a perpetual youth in Paradite. Her's was an uncomplaining fortifude, under a coderanof and painful insludy. Larly following see a disciple of Joeis: she'dld not wayer or fring for the way, but chang closely to him in whom slice had put ber'trust." It' was 'n voter,' but 'em not earthly which enusumed to her a midden and long departure from these carthly specific It eams to her ni a vales of One rises from the dend, calling "Come, come unto Mo and will give you rest," and she was ready to older Then she took up the deceptance of the furi-tation without a woul of repining or distant and what was more, began to open from the

confines of Eternity, a discourse to preciping friends, which was a testimous to Joseph the most remarkable that his over come to but notices. A moment-with closed face slidand then with open eyes and almost supp natural voice and countenance size revealed nu beavenly vision. . It seemed as if a corner of the veil and been lifted—lifted as it never is before the cappl spirit has beaten its wings to an everintting flight; and bathed them in the glory of the unseen world. "She had cressed, and come buck," for one of these new revelations and manifestations, with which the Master delights to cheer and confirm the faith of His disciples. And then, with words only from heaven

with abiding faith and contentment, she unfolded the vision of the beauty of those celestial manufeus which exist all prepared for the reception of those who will come to receive them. Monraer, weep not. This is the grace and presence of the Lord Jesus Christ. No doubt; all was peace and tranquility, : Death had no terrors at all. And so the fell nalcep. What shall we say? Can this evidence be of queth? On the afternoon of the Lord's Day. they laid away her procious remains in the mother earth, there to rest till the archangel's trump summent her sleeping dust to life. ".Until the day breaks and, the the bras the away Time for the early dead we weep :

Het perceid is their helbreck sterp i And Baviers, when the light we see, it hipse from the dast they rise to Tate. Here feelows shall their rising bale.

LOVE ENDURING Nay, tell me not, my descent, That more has dimmed thing eye; Still, still my path thea cheerest, As in days that are green by tay not thy check is follod, He the closels of other years

If Time much more hed take I could fugive each theft,

And he love for me was left.

But hearts become no colder,
If they are what hearts should be.
The own has never altered.

Thy own has never aftered, As years have o'er me past. Thy love has never faltered, When my least has been p'eressi

Then tell me not o' changes

In cheek, or brow, or hair; The lave such loss entranges, Must be lighter for thou air

Though neuroing's carry calcudo.

May repture's thrill impert, The vesper hour more tender, Sinks deeper in the heart.

Though spring be gay with rever

And summer skies are clear.

lastices no threatin of giron.

Original Poetry

Millicent.

How beautiful! how seatefully She lay in de th's repose;

Her he say or noneut muchle.

I forget while I stood gazing, Her young life had passed aw .y.

Appeared her dresuless rest.

As she by in show white vestments,

Watching o'er with he wenty care,

As her spirit joined them there

'Neath " de th's honey dews oppressed;'

So be, utiful, so near eful,

I wondered it the one-is.

Bresthed not a holier anthem

There we no chilling terrer

Her small, white hand's were folded

Where the fair hair lightly by :

And her soft blue eye was closed;

In hearts that share together, Hopes of blive beyond the tourb. Banton

For The Casket

L'en age's writty weather

THE CROCUS.

Bown in my sellinds under the sason,
Where solding closting claim carchine;
Where solding closting claim carchine;
Here without light to see how to green,
I'm may to mainter to teach the property of the seed of the the secrete, cates, and feare, Test the brown is semetriest shede-While the heart remained unshakes

THE CROCES.

While the hall in my bosom is rectility.

Room as the freet will get out of my bed.

From the could draggers to from tot,

From the could draggers to from tot,

with my lattle teight here.

An all will be jyridal to on rec.

Then from to pract will spring petal-dracept,

At reys of the sam freet hald town:

I from the darkness of carth will enterpy,

A happy and bassaifud Grocur?

Many perhals.

Many, perhaps, from so rimples figures, That little haves may become: Primest no-day, through its glevenical hear, We come but the beighter to-scorror.

4 This pretty flower blooms in early Spring. Its quies, are yellow, purple and where.

A SIMILE. BY BELLA PRENCH

Doce I now a bull at morning. All berreiskled with the dew And Times very frogrant, too.

Ohl the hand was rule that snatched itAnd its purpose was to kill—

Evening came and from the with-red, But the fragmente linguest stell Once I know a levely may len.

She was rich, in mind and gold. And in boosty had no rice'— All accept her praires told But I saw her, long years after When she was no langer fall When she was no longer fair; And her riches all had vanished— Yet the girrious mind was there. Thus it is that wealth will leave us. And our beauty will decay: But the talents that find mare us

Sorely, none can take away

and the Good and the Service of the Control and Service of Ser

A large Centennial party who visited the White House the other day asked to be shown "the litchen where the President cooks," Upon being told that it was private, a slabsided, shrill-voled female exchaimed, "Iguesa it belongs to the United States, don't life The doorkeeper mildly remonstrated that the President ought to have some privileges

"Don't use that word, again, my boy," said a mother to her six-year-older. "You don't want to go to the bad place, and be burned all up, do you!" The little fellow thought a moincut and then exclaimed inquiringly. " But,

A connecticut gentleman recously, intro-ducing a newly married man, congentuated ducing a newly and said, white here Litchind him yarmly and said, white here Litchind Compy girls make clever wives, five had three of the high said said.

Not Ashamed of Work.-Two of the meet Tinkerson as he gianred at a pi window. "Well, you can get whore I live. The Institut's plane and recites pactry in the

Not. A shared of Warker—we of the unit-gramed girls it or me shop a spect of profession. It approach girls it or me shop a spect of profession. It tangater. When that folder he had swell, and be-toman a confident blood blood of the stellar and the stellar days begang me to give those a field seed and days begang me to give those a field seed and stellar and the stellar and the

What his Waster-Two driving of most and man changed by the property of the pro What She Wanted .- The dearth of men at

. I, for musculine partners.

A CHINAMAN in California, whose life area insured for a large amount, was retirmed here by failing from a wagen. There are not the most of his pet-ting before, and at keepth one of the friends wrote to the insurance company. "Charley half densi; like half most of the company."

up the exen, and rolled off the log; but it she didn't first extert from Slage the promise of a new bonnet every six months hereafter, she never deserves to have wich a chance again.

The ten throw around a blanch when the con-pleted of the control of the con-leted of the control of the con-trol of the con-trol of the control of the con-trol of the con nice inspressed or the respects a richig bids insecting, frentled at the cost, even along back more virtue then be lost; character regist, he counts his galan; it's cope was nit, the solid good remains; what it wood except what friend and for m as soon COUCED WITH FITTERS BAIL OF ONLY WITH STREET AND THE STR

1791 1792 1796 1502 1511

Verment, admitted to the Union, Kennecky, Tennecky, George by Presidents of the United States, from the Adoption of the Cons

11. James Rove Price.
12. Rathery Taylor.
12. Hillard Poissore.
14. Panna in Perce.
16. James Buchana.
10. Attention Lincoln.
11. Andrew Julyson.
18. Higgse S. Gent. • Diel in office

Amb increases company. "Charlet Init God; the Initiative Initiativ

Tr.

Wit

18

This

The precious fools, I must am Whenever was the greater: I wonder if I'm wise now, Euro seven lusters later I

State Living Action

No ear, or thought of dee d To dark my mind a moment, As I stood broods the t dead. It seemed not that I looked upon A cald and nezveless form. But a fracile, f. Lied conclud. Broken off in some wild storm.

I turned me do dy from her-A of I hashed the smothered sigh; For some spirit voice was whispering

"Tis a glorious boos to die," To waken disemb slied From this transient, earthly dream, All consciou , though forever p at, The d rk, and turbid errors

How beautiful! how heautiful! When those we love de art, To feel it is a Pather's hand, That chaste with the heart; And though it be the idel, Of the dear over, th I were give 1,

To know we have a guiding star, A beacon light to heaven. There was a punic among the mothers at of privacy,

a Cincinnati hotel recently, when the bill of fare came out and announced "children potple " for dinner that day. It turned out, howpie " for dinner unit uny. It turme, un, mo-ever, to be the printer's mistake for " chicken pot pla."

When you see a physician sprinkling ashes on the fey sidewalk in front of his residence, you may know he has retired from the proion.-Norristoun Herald.

fession.—Norristourn termo.

A wished man in Davesport, being on his deathbod, wished to consult some proper per-ol-licent regarding his future state, and his friend, sent a five interarces spent to him.

mamma, don't they have any steamers there?

you co odd that yo though

THE AMERICAN UNION.

HOTEL REPER Printell Lewelt fo The Notion. The word terrar until a democracy they say.

The word terrar until a democracy they say.

Execute thread and knows of character a way;

Four the registration, muscus of grower,

Four may or races is on the downward path

Where they grown too self for homest weath,

And there's a souther indicates that surfuse.

agor seyere at no long vista's cust; lises days for plain things plain words would

The limits of the first plant things plant weeth would be provided by the plant things plant weeth would be provided by the plant the plant the plant to plant the plant th

Because beans them runes over mandates grand without stancing made their mandates gradually beautiful to the stancing of the s

admitted to the Usio

r than before.-



THE POOLX INDIANS, JUNE 25th

THE LATE GENERAL GEORGE A. CUSTER, U. S. A.

CONTER, CONTER, A. CONTER,

acció an a higudo communica el monito troupe.

Blissuph not rescrib tilli far ratio diable to lide position. He, hoevere, rivingal sono adiag a lide position. He, hoevere, rivingal sono adiag a lide was aniverpendi populación a legislación general el vadiation. Comprese afferenante confinence in el vadiation de legislación de legislac

Is has been usually conceded that man and wife are one, but we know a man and wife who are ten. The wife says she is one and her hus-



MARSHALL LEFT :RTS. MAISHAM, LEP, 1978.

— Ool, Marshall, Lefteria, shouls moon yeateclay, while things in a rear on the Preservania habitation in a rear one on the Preservania habitation in a rear one of the Preservania habitation in t the borly arrows therebyes and then went knot to the among yields (by Ma left, only, for lowery before The came of death is supposed to have been peoplessy. The came of death is supposed to have been peoplessy. Cold. Lefters was been in 1920; in then period proceedings and the supposed to the supposed

Origin of the Names of States.

Maine takes its name from the Province of Main, in France, and was so called in compliment to the Queen of Charles I., Henriesta, its owner. New Hamnsbirs-first called Leconia-from

New Hampshire—first called Laconia—from Hampshire, Expelsed.
Vermont, Irons the Orean Mountains.
Prench, ered steat, O.
Massechusetts, from the Indian Isanguage, signifying the cointery-about the great hills, lifetime of the State of Ricoles in the American Company of the Island to that of Ricoles in the Company of the Island to that of Ricoles in

Blacke Lineage (18 inoue) From the facebook (

ois name is derived from me willing in mean and the promote affix making "Tribe of mean". The mean of the mean indian name for mudd, our wild, and indian name for mudd, our feet and indian name for mudd, our feet and indian name for mudd, our feet and indian name of the mean of the mean of the

MASSIMAL INSPERIENT Persistent for Good on Store Telegraph Com-pared Company, Forestey Colonel of the Secondal Barginana, N. G. S. A. Y. w. and C. B. W. S. A. W. S.



the strate is seen in the problem, and their were constructed. The street was a least place on the construction of the system constructed to the system constituted to the system constituted to the system constituted to the system constructed to the street was a street with the system constructed to the

He was a member of the New York Historical Society, and for several years was one of the most active members of the Council of the Gorgraphical and Statistical Society.





by Mr. Edison during his experiments,

is his ministant, as we have already stated, were experi-justications and in the contract of the contract of

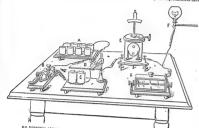
Is our number for last week, we called attention to what if there were any-bright sparks are visible between the farour numeer for man week, we cancel assention to what it toers were any-outgut sparks are virtues netween the we at first supposed to be a similarity between the prior ex-

portuents of Findence Riess and those of Nr. Riice. A far- ley.

Her examination of the Riess reports activities us that the Sanding on an insuinted stoot, the experimenters draw results obtained by Nr. Diless are noreal, and have little or paper's from the following arrangement (Tip. 5, in which y is nothing in common with these of Professor Riets. nothing in common with those of Prefersor Relats.

We have had an opportunity of closely examining the appearant by which Mr. Editors and his sanitants elasined the vibration of two parts by which Mr. Editors and his sanitants elasined the vibration of two parts by which Mr. Editors and his sanitants elasined the vibration of two parts and h_1 and h_2 are considery latter; h_1 and h_2 are considery latter; h_2 and h_3 are considery and h_3 are considered as h_3 and h_4 are considered as h_4 and h_4 are considered as h_4 paratus by which Mr. Edison and his assistants obtained the wifer; C is a block of iron, and D, a condenser, all well intu-evidences of the supposed now kind of electricity which has lated enterpt A, which is of glass, and stands on the table, in another experiment a glass rod, four feet long, with a in another experiment a glass rot, four feet long, with a in another experiment a glass rot, four feet long, with a piece of carbon fixed to one end, was well rubbed with a silk by Mr. Dilson during his experiment. by Mr. (Stream during his experiment.)

The first recognition of the eliminative classates of the form recognition of the eliminative classates of the form recognition of the eliminative classates of the specialists, the other end of the roll being held in the specialists, the eliminative rest of the specialists, the other end of the roll being held in the landstructured of the overlained Newson and the curbon point presented in the specialists, the other end of the roll being held in the landstructured of the roll being held in the specialists, as we have already install, were experimentally and the held of the specialists and the substants and the roll being held in the landstructured of the roll being held in the specialists, as we have already install, were experimentally assume that the specialists of the specialists and with the landstructured specialists and the roll being held in the landstructured of the roll being held in the specialists, the other end of the roll being held in the landstructured of the roll being held in the specialists, the other end of the roll being held in the landstructured of the roll being held the roll



MR EDISON'S APPARATUS, EXHIBITING THE NEW PHASE OF ELECTRIC POICE. PR. 2.

the core of the magnet. They had after matter it to rain | to device, the new current refuse to obey any of the cache-phenomena is conscended with independent elements. In small likelihood selected for trainer than that it traverses manifest to the constraint of the spati was as highly that they suspected something more into indication. One setting the separative they found that, illumph unbrailed virtual, its power of producing action pleas of much judge of the spati. They magnet with a process of much judge of the spati. They magnet with a process of the spatial process of th where, and gat a spath by teaching the wire with a piece of the Sellice in the Se hersupon a spark could be drawn from any part of the gas pes in the room, and subsequently it was found that the park could be drawn from any part of the whole system of

para come or commission any part of the whole system of ity gas pipes. The vibrator and battery were next placed

on insulated stands, and the wire, connected with x, Fig. 1 was carried over to the stove, about 20 feet distant. On rub-bing the end of the wire against the stove, splendid sparks were observed. With the wire permanently connected with were observed. With the wire permanently connected with the store, spanke could be drawn from any part of the store that the piece of meant held in the hand. Again, a piece of meant held in the hand, Again, a piece of the store of the stor

District of Graves from the from.

There and other experiments which we have find the plensure of witnessing show conclusively that the new force is nto or withcream, many constraints of static electricity. aod amenable to the laws of voltale or statle electricity.

An experiment and with the appearates figured in the large (segrating 10g; 2) will matter particular that the force properties are the segrated of the particular of the particular that the force of the particular of the pa on except the gas nature. A is the naturey; is, a common example key; C, an electro-magnet; D, a har of enduring r metal, cadmium being the best) supported by a

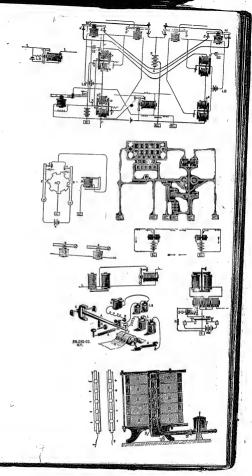


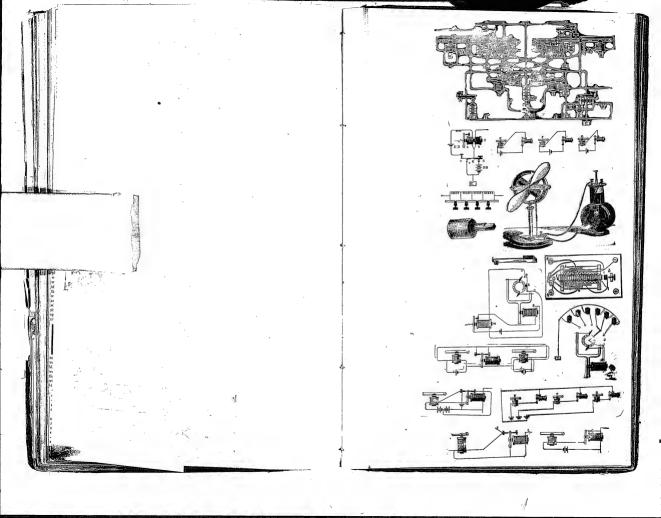
isulated stand ; E is a mirror galvanometer ; F, the gas pip-G, a dark low enclosing pencils with graphite points (co On a dark low enclosing pensits with graphite points (common lead pencils). The unknown current passes from the far of administ income the galvanometer, without causing the slightest defection, and—notwithstanding the gaw pipe con-

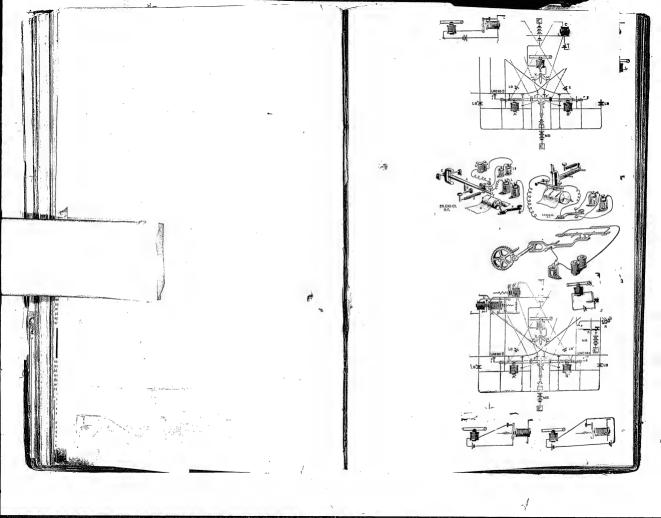
the core of the magnet. They had often noticed the same | to device, the new current referes to obey any of the estabexpenses is no come or minimum the presentative describery. On this occasion a cumulative may be noticed us seek or positive individual to the practive mass or highest that they suspected association more the earth (and consequently its expectity) of transmission of the earth (and consequently its expectity).

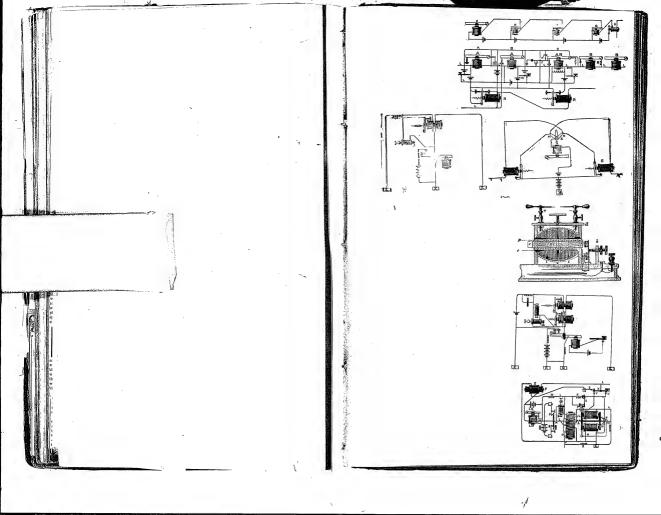


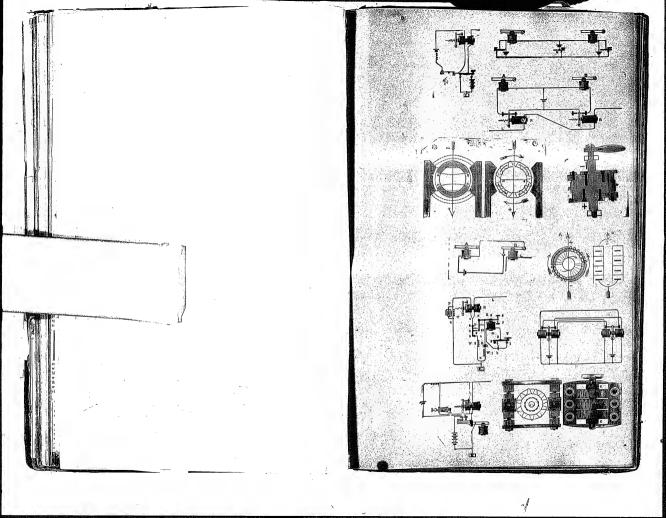
"Hil where did you get them trousers?" asked an Irich "rail whose du you get then trouver?" aeked an Irishman, or a man wn appened to be juseding with a remarkably edoor pair of trouvers on. "I get then whose dry good" was the indignant reply. "Then, by my continue," "raid Puddy, "you've pulled them a year too scon!"

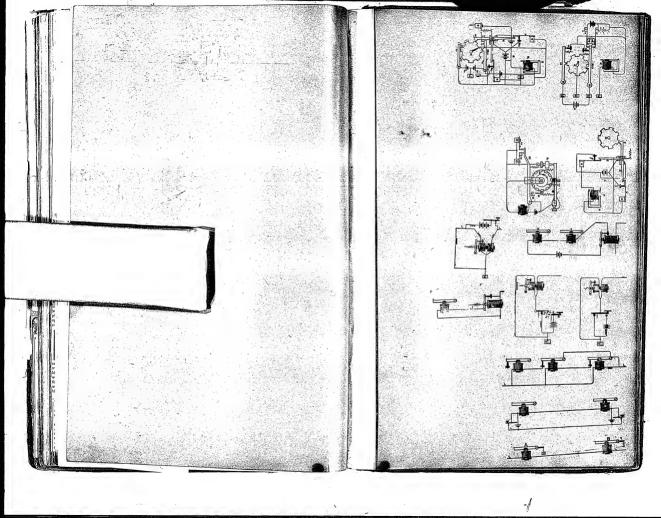


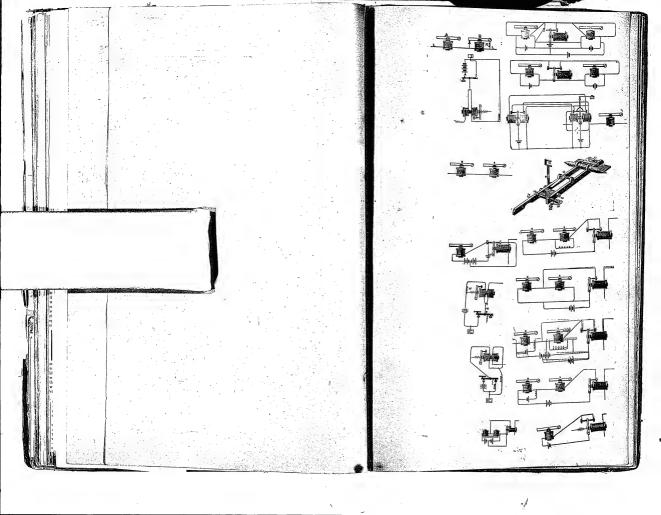


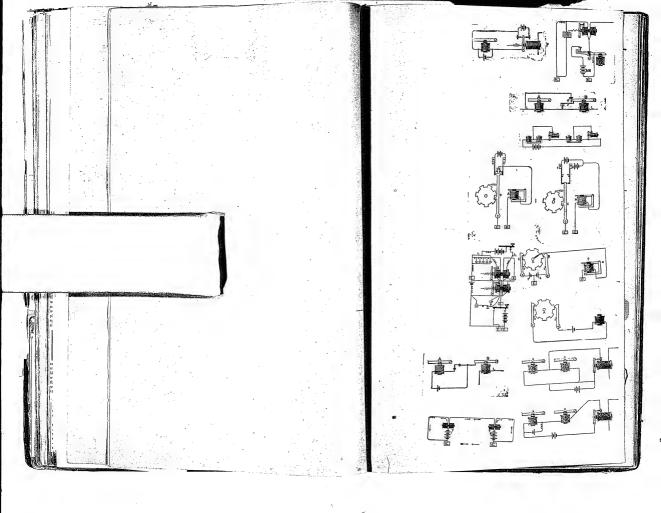


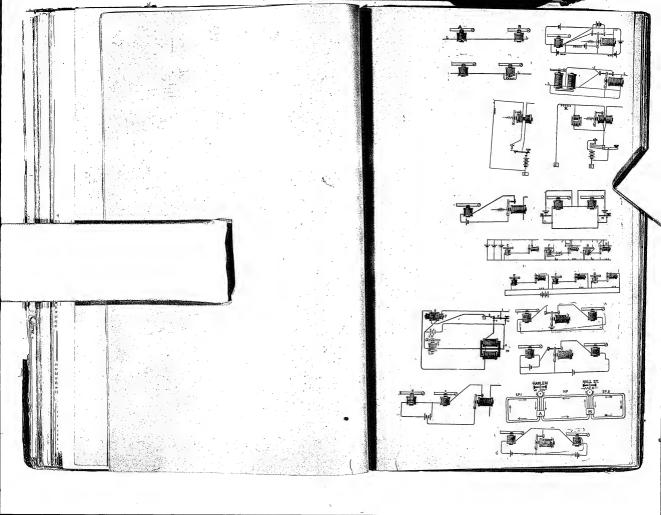


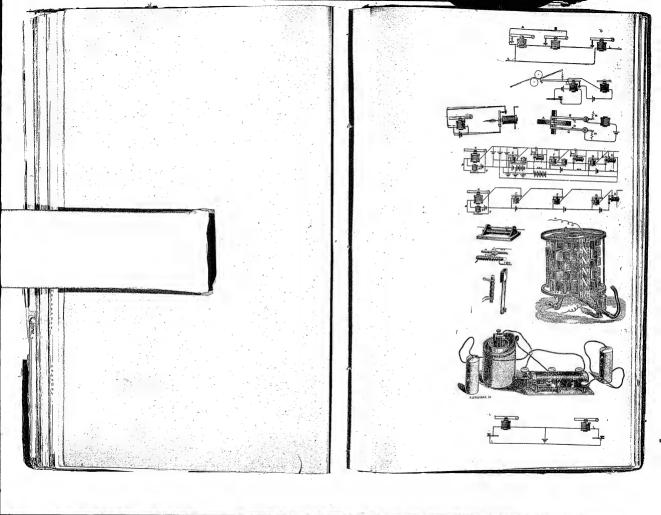


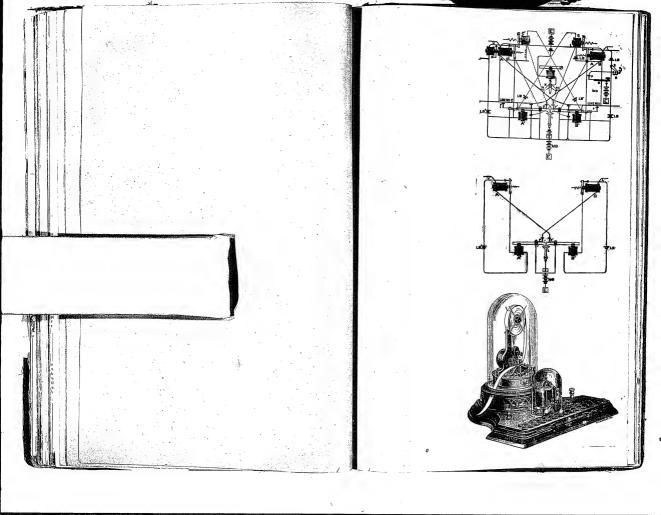


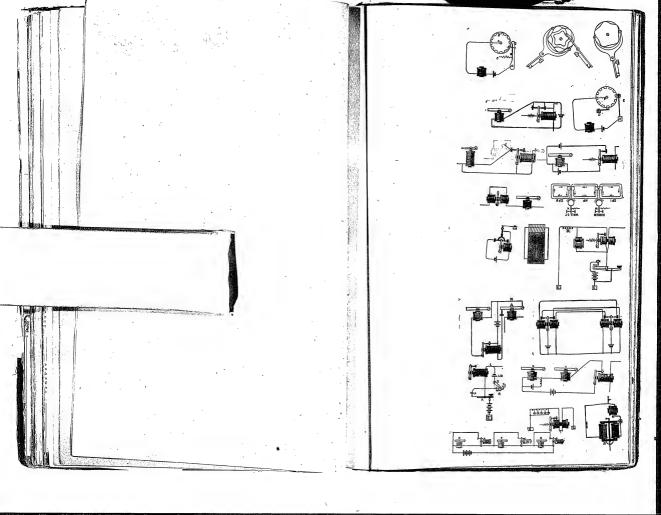


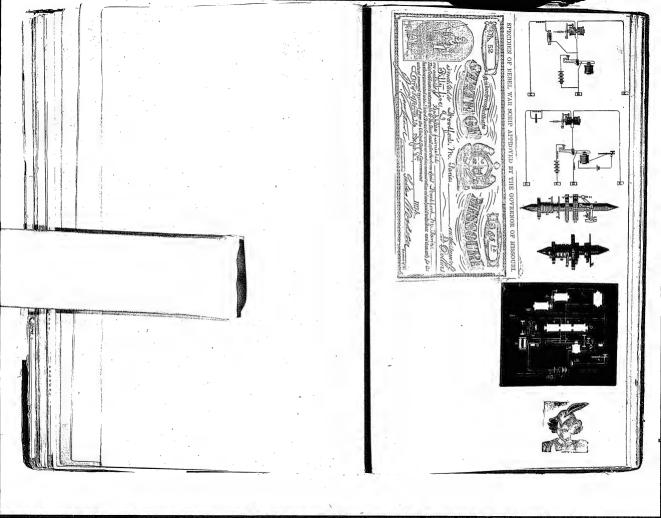


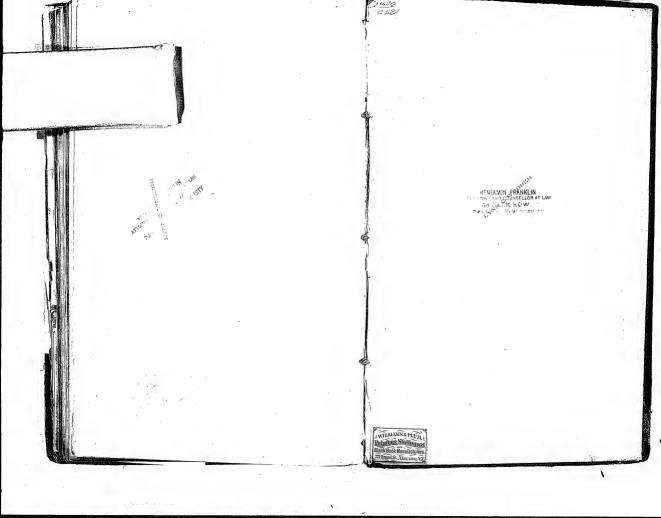












Scrapbook, Cat. 1143

This scrapbook contains material dealing primarily with telegraphy.

Most of the documents date from the period between 1870 and 1875,
although there are some items from the 1800 and 1875 and 1875,
although there are some items from the 1800 and 1800

Blank pages not filmed: 55-56.



GENERAL AGENTS FOR T



SHOLES & GLIDDEN
TYPE WRITER,

machine to write with types and supersede the pen fo

CIRCULARS UPON APPLICATION.

POST OFFICE TELEGRAPHS. Free Message on Official Business. · · GEN HARPINGTON ___ No. of Words Code Time S.MACHINE WORKING . VERY CLERK CLEBE CIMEN.OF. THE . MANNER . IN! WHICH . IT . WORKS . . D Q IT . WILL THE . NECESSARY . TO Signature of Sende G [531] 1,000,000 0 178 TO MR HARRINGTON THIS IS A SPECIMEN OF THE PRINTING DONE ON THE PRINTING MAG THE -DO YOU THINK IT ANY IM-| PROVEMENT: OVER THE LAST SPECIMENT, T ISINOT SO VERY MARKED AS KNOCK AF MAN DOWN BUT STILL IT TS /A STEP IN THE RIGHT DIRECTION . TWO SPEED IT WILL PRINT AS FAST AS THE OPERATOR CAN WORK THE KEYS AND THE TYPE WHELL WILL NOT REBOUND OR TTHE LETTERS GET OUT OF LINE AFTER THEY ARELONCE PROPERLY ADJUSTED CLARK

AMERICAN (1971) AMERICAN TELEGRAPH WORKS,

No. 103 New Jersey Railroad Ave.,

Manufacturers of Telegraph Machines, Small and Accurate MECHANISM.

T. A. EDISON, Agent.

For Muron & Gratict
STREET RAIL W. 12.

3. Mary J. C. Edica on Hardy
Back States

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AMPRICAN &

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No. 124 , Felow H Chamberson

J. T. MURRAY & CO

111 & 118 N. J. R. R. AVE.,

NEWARK, N. J.

NEW YORK, OCTOBER I. I

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AUTOMATIC TELEGRAPH CO.

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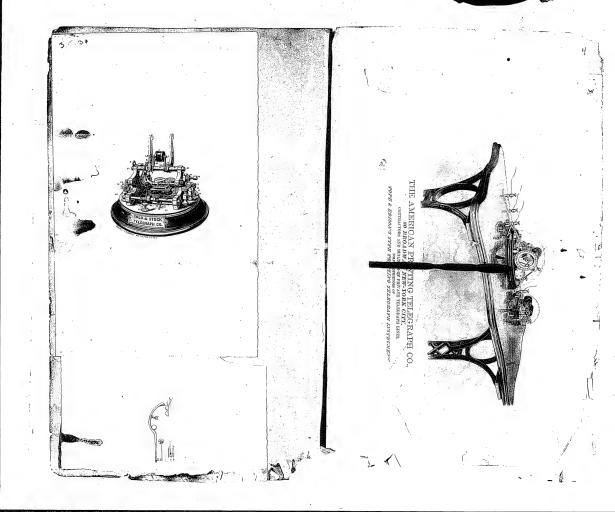
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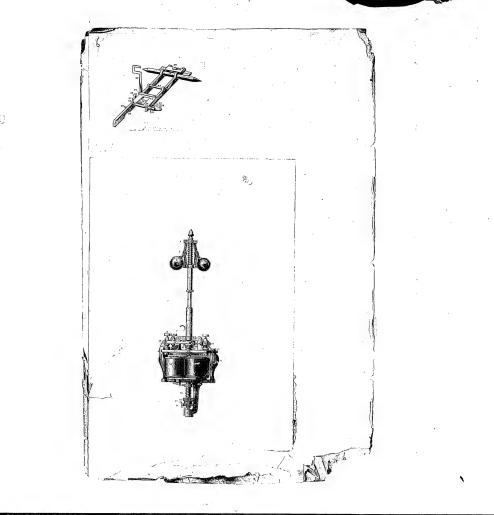
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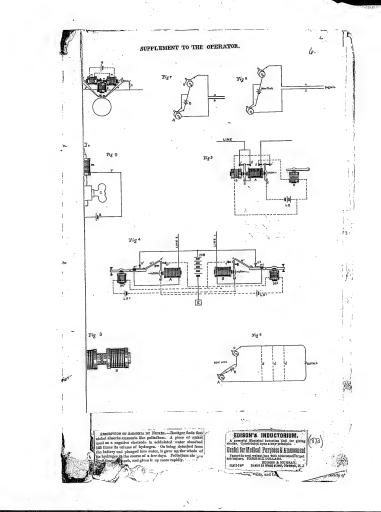
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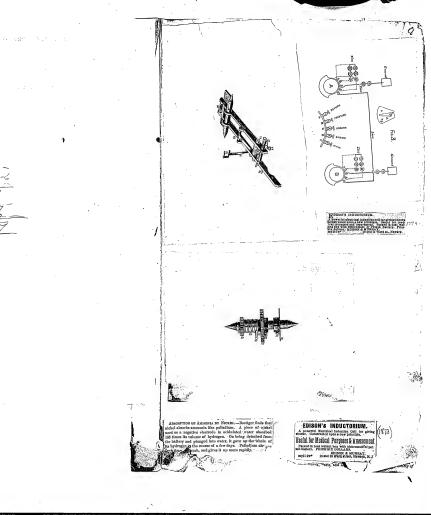
J. C. REIFF, Sec. & Treats.

GEO. HARRINGTON, President.









W.KINEN & C:

PARIS, 10 11 Octobre 1879

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PLAYING WITH NICKEL .- This may be effected by placing the object to be plated, whether of Iron, sicel, copper, bronze, no or lead, in a boiling neutral notation of zinc chloride con-plug a salt of nickel, and granulated zinc. If the zinc sois seld; if out of nickel is dull. A plating of colult

of M. Gramme, already mentioned. Many machines of this class have been devised, all of which produce an electric current by the motion of one or of many magnets before a colled wire conductor, or by the reverse arrangement of moving colls and stationary magnets. The older machines were unsatisfactory in consequence of the cost and the inofficiency of the large or numerous permanent magnets required, or the expense and trouble involved in their operation. Later, it was discovered that the electricity thus obtained might be employed to excite larger electro-magnets, from which a powerful current could be obtained by the use of a peculiar form of revolving armature invented by Mr. Siemens. Still later, it was found that no permanent magnets were necessary, but that, the electro-magnets retain-ing a small quantity of magnetism at all times, the machine could be set in operation and brought up to full power by diverting a portion of its own current for the excitation of the magnet, while the remainder of the induced electricity was given a useful application. It is to this latter class of machines that this apparatus of M. Gramme belongs. Its distinguishing peculiarity seems to be that there are several Slemens armatures, instead of but one, all arranged on a single revolving shaft, and set like the revolving knives of an old fashioned hay cutter, or, as a better illustration, like the toth of a very broad faced watchmaker's pinion, or a genr wheel of small diameter. They are quite closely set, but are thoroughly insulated from each other. The electromagnets are arranged in a usual form and possess no no-

ticcable peculiarity.

In this large machine, one horse power is said to develope a current equal to that of sixty Bunson standard elements, and to be capable of heating thirteen meters (over forty feet) of iron wire one millimeter in diameter (*004 inch) to a bright red heat. It weighs six hundred kilogrammes (1320 lbs.) and costs about the same, for similar power of current, as the Ladd machine which was, some time ago, described in the SCIENTIFIC AMERICAN. Its great and exceedingly impor-'tant advantage is that its armature revolves but two hun-dred and sixty times per minute, but a fraction of the speed of the Ladd or the Wilde, and can thus be worked indefi-nitely without trouble from heated bearings, and with less consumption of power.

The Electric Light.

Up to the present time, as is well known, the electric light has been used only for lighthouses, as an electric sun illumination for signals, or on the siage, where a strong light may be required without regard to cost; but thus far it has been quite impossible to employ it for lighting streets or houses. By the old method the electric spark was passed between two points of charceal, each attached to a copper

wire connected with an electro-magnetic machine. The disadvantages attending this mode consisted in the facis that for each light a securate machine was required, and that the light so obtained, although very powerful, was impossible to be regulated, besides being non-continuous, owing to the rapid consumption of the charcoal points from exposure to the air. All these difficulties Mr. A. Ladiguin, of St. Potersburg, Russia, has tried, and apparently overcome most successfully. By his newly invented method, only one nince of charcoal or other had conductor is required, which, being attached to a wire connected with an electro-magnetic machine, is placed in a class tube, from which the air is exhausted, and replaced by a gas which will not at a high temperature combine chemically with the charcoal. This tube is then hermetically scaled, and the machine being set in motion by means of a small steam engine, the charcoal becomes gradually and equally heated, and emits a soft, steady, and continuous light, which, by a most simple contrivance, can be strongthened or weakened at the option of those employing it, its duration being dependent solely on the electric current, which of course will last as long as the machine is kent in motion. Taking into consideration the fact that one machine, worked by a small three horse power engine, is capable of lighting many hun-dreds of lanterns, it is evident that an enormous

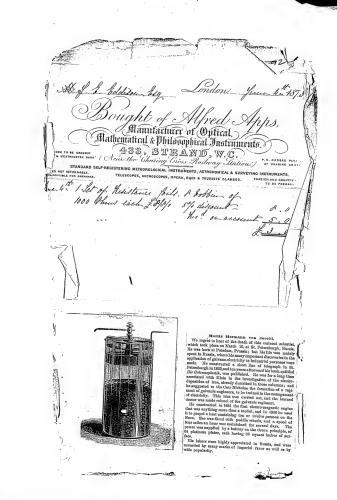
advantage and profit could be gained by the illumination of streets, private houses, public buildings, and mines, with the new electric light. In the latter, it must prove invaluable as no explasion mod over he factor! from 11, and these Instructs will have oughtly as well under worker as in a room. Without mentioning the many advantages this mode of illustrative to the state of t as no explosion need over he feared from it, and these lan-



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Cours-Bericht der Direction der Disconto-Gesellschaft in Berlin.



Marshall Lefferts, Freit. Joseph M. Cook, V. Treit. Norman C. Miller, Socy & Jesusir Geo B. Stott, Supt. The Gold of Stock Telegraph G. Executive Offices

No 61 Broadway, New York

Tlew York, June 21 \$ 1873.

a Mory Ir 44 × Place

The Gold I Hock Telegraph Company peoperfielly submit shepationing feels for the consideration of their subscribers.

"This Company have brought their explane of apparaing by means of Legraph Generally Instruments to its present state of efficiency, only by a larger extenditure of time and money, and while the voice has been greatly engineed by the constant introduction of new Instruments, they have according that their pales for the service.

They have also recently proposed improvements in Mace Instruments which will greatly increase their speed, and enable us to report promptly even in an excised marked the present brokenments will lareplaced by the interpretaced are into being already family exact. The Manhatten Quotakor Telegraph to having exact. Interview interview are completely on the interview and the interview are interviewed.

THIN IS A SPECIMEN OF A MACHINE WHICH IS MADE FOR THE PURPOSE OF DO ING AMAY WITH MRIVING. AN EXPERT CAN PRINT FASHER THAN A MAN COULD RRITE, SO THAT NOW DESIGNS WHO CONNOT AMAITE WELL A SUBBUSUS TITTHARECEE HITCOGOGOWNERWEECECHMANANTITITYYYYYUUUUUIIIIIIOODORPPPPILIIII ACCEVMONT, MALUFOFOTHA.

the Goal othock Telegraph B, it becomes orecasely to anmounce, that such Instrument is an infingement of
the palmoto belonging to this Congravy and that suits are
now in course of perparation to munitain our rights and
will be prosecuted as fast as practicable. In the mean
time all persons using the instruments well be held my
possible in demages to this Company when we finally
establish our palout rights.

As we write the pregoing, a circular of the stand of the distants of the standard of the standard of the standard of the standard of parties wing their machines or. These guestions well be to im due course by the Courts. We do our simple duty a wiforming our subventions and others of the facts, was law the matter to their own dis orchor.

Yours Respectfully.

Marshall Deform

IMPORTANT INVENTION.

ap Telegraphy-The Automatic System. (From the Newark (N. J.) Evening Courier.)

In all times men baye desired-to commu nicate with each other through space. The traveler, far from his family, desires to inform them of his walfern from day to day The invalid wishes to call to his bedside the masters of medical science from distant cities : the members, ever wetchful over his individual interests seeks to know the priots of foreign and domestic markets; the Judge, the Senator, and the General, who regulate their conduct by events which obtain the carllest and most correct infor-

More and more clearly as human activity increases, as our wondrous civilization un folds thealf was negative the measurity of your feeting and increasing our capacity for distant communication. Already the telegraph affects our daily habits, regulates our business, enters largely even into our social into and ministers hourly to the wants and necessities of mankind. What was formerly an expensive luxury used at rare intervals by the wealthy, has by the efforts of many ingenious minds to cheapen its processes been brought to a success which would have appeared impossible to our ances.

Before the practical introduction of tele graphs to the service of industry, they were considered merely a parlor curiosity.

The system most generally adopted (Prof. rse's) dates from 1831. At this time the machine was very nearly as perfect as it gat the present time, and yet the inventor and to wait and labor for cight years before a succeeded in getting his invention sesly considered by the public. It would sem to be a law of human nature to regard erely as chimerical all startling innovaas. Undoubtedly, even at the present time, Streat admirable inventions, which will ear simple and admirable to a future ation, with obstinacy and contemp ir forefathers remarded the mechanical ders which seem to us so simple. All inventions in electric telegraphy, as in things, have to pass through a long nordected childhood

te two principal systems of telegraphy I throughout the world are the Morse House-Hughes Printing systems. The amunications in the former system being sed upon a strip of paper by an elecagnet and lever or read by the sound and in the latter system the message inted in Roman letters upon a band aper, by means of type wheels one at end of the line which by poculiar anism are kept running at exactly the speed, so that at the moment signment, so that he the moment effer required is passing the printing mer, a wave of electricity is sent over vire which brings both hammers up to se of the type wheels and imprints the

f speed of the Morse system varies acto the skill of the operator, the tapeed ever obtained being fifty two minute, but the average speed of and operators is twenty words

ed of the House-Hughes Printing somewhat greater; as many as rds per minute have, in exceptionsn obtained; but the average will 45 words per minute. But this ors under the disadvantage of not long circuits, and upon bad

and the necessity of

obtained by any system which depended upon human manipulation, and many inventors carly turned their attention to tele-

graphing by machinery. Many attempts have been made in various directions, but abandoned, when Alexander Bain, an Ingenious Scotchman, conceived the germ of a true system of Automatic Telegraphy which was the perforation of telegaphic characters on continuous strips of paper and recording the characters so perforated upon chemically prepared paper by electro-decomposition. But this in-genious man did not live to complete his invention owing to the seeming impossibility of a rapid preparation of the paper and the difficulty of manipulating the elec tric currents to obtain the rapid speed which he honed

After his death the system was taken hold of by Sir Charles Wheatstone, the inventor of the English Needle Telegraph, and carried to a greater perfection than obtained by Raja. This system is now used mon the English Telegraphs. The speed is limited to h an extent that it is little better than the House-Hughes Printing system, but 75 words nor minute being sent over a wire four hundred miles in length most excellently constructed.

In America several inventors have been at work carrying the germ of Bain's idea to its perfection, among whom may be men-Little, Westbrook and others, all of whom contributed to its advancement

In 1870, Thos. A. Edison, of Newark, N. J., ventor of the Stock and Market Reporting Printing Telegraph, used so extensively oughout the commercial world, perfected the first rapid machine for a rapid preparation of the namer and other machinery for the transmission and reception of the messages, employed in the present system of telegraphy; and in 1871 discovered the laws which regulate the waves of electricity sent at high speeds through long suspended telegraph wires, and invented his mode of manipulating these waves by what is called "in ductive compensation," so that waves could be transmitted and recorded under all conditions at a speed approaching the marvelous. Other inventors had succeeded in transmitting with considerable rapidity at times, but they were constantly troubled by phenomena, the laws which governed

rapid transmission not being understood. The patents and system of Edison have bren acquired by the Automatic Telegraph Company of New York, who have a num her of wires operated by this system their number being rapidly extended by the building of new lines and the acquisition of

The speed with which intelligence is transmitted from New York to Philadelphia and Washington is something incredible. The despatches of the Press Association are sent at the rate of one thousand words per minute in all conditions of the weather, which seriously affects other systems

Between New York and Pittsburgh eight hundred words are sent, and between New York and Charleston, S. C., a distance by wire of one thousand and fifty miles mes sages are transmitted at the rate of three adred words per minute, a wire which neither the Morse, nor House-Hughes can practically work direct. It will be seen that the capacity of one wire between New York and Washington is nearly count to the total mail correspondence between those

The various operations performed in the preparation, transmission, reception and rangeribing of the message are very simple.
The message as it to the from the public shanded to are operator seat of the con-

two elties.

the depression of any key punching the telegraphic character upon a continuous strip of paper. By touching the proper keys the message is quickly transferred to the strip, which is then pulled out a short distance wound upon a reel and sent to the transmit-ting room; here it is taken by the circuit operator, the end being placed on a metallic drum,connecting with the battery, resting on top of which is a small arm, having a little wheel connecting with the line wire. The machine for the reception of the message at the distant end is similar, only the perforated paper is replaced by chemically prenared namer. If now the signal is given pared paper. If now the signal is given, both operators turn their respective ma-chines. As every hole of the prepared strip passes under the small wheel and arm con-nected with the lines and battery, the small their paper of the small part of the small of this splening the lattery upon the files for an instant, a small hole sending a small wave which is passing through the clean-cal paper at the obtains and decomposes the state of the small part of the small part of the state of the small part of the small part of the state of the small part of the small part of the state of the small part of th

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working badly or lave been down the business accumulates very mpdily, and when the vire is again in condition the operator has before him hundreds of important measages which must be sent by a tedious process and delayed for hoars, whereas, by the present system the messages are all prepared while the lines down or working badly and are all quickly transmitted when the wire becomes in a condition to work. In regard

becomes in a condition to work. In regard to working upon very builty insulated wires the principal drawbank to Morse telegraphy. In Edition has mande sevent irribate between ton, S. C., over wires which had been abundoned by the Morse operators owing to defective insulation during a protincted abundoned by the Morse operators owing to defective insulation during a protincted work of the contract of the contract works and the contract of the contract works are also as the contract of the contract works are contract, being in fact one hundred them current, being in fact one hundred them apparatus.

more sensitive than the ordinary Morse paparatus.

The large considerations which in the paperatus of the pa

distant day to reduce the telegraphic rates so low that the entire commercial corres-pondence of the country shall be done by

fow weeks ago we published a few state. nts respectible an invention made by Geo. Little, in Electric Telegraphs, and the "New York Courier and Enquirer " copied them, Some person connected and sequainted with telegraphs, has endeavored to correct some things in the short article, but it is very evident that he is a careless reader. It was thus stated in the article referred to- Mr. Little calculated to save \$200,000 to the Telegraph Companies : he does not use platinum, mercury, nitric acid, nor suiphuric." Out of this the corrector goes on to prove that this cannot be, as the batteries for all the telegraphs in our country involve only an expense of about \$12,000 per annum. This may be true; we know that Mr. Jones puts down the ex for batteries at a far lower figure—only \$6,100 -but the article referred to did not state that the whole saving was to be effected in the battary-it only states he does not use certain erials, and no more. He also asserts that Mr. Little " has discovered nothing new, that the idea of substituting the magnetic electric machine for the galvanic battery, is not a new one. In 1845, Prof. Morse made the experiment on the magnetic principle on the line bement on the magnette prostape on the said of magnetic electric machine belonging to Dr. Page, of the Patent Office." He also states that Mr. Davis, of Boston, and Mr. Baily, of Detroit, made successful experiments with a like machine. We would state that like experiments were made twenty years before Prof. Morse attempted it; but how does this man know what machine Mr. Little uses ? It was stated in our article that he recorded messages exactly like the chemical records of Bain; Prof. Morse never did that, and if Davis and Baily have done so, let them produce the do-

> Chemical Telegraph. Recent and wonderful improvements in the alsoion of messages by the electric telegraph have recently been exhibited in France. The instrument is the invention of Mr. Bain, and called an electro-chemical telegraph, and conveys its message in the very handwriting of be persons who send them! It claims to bare great advantages over the electro-magsetto telegraphs in general uso. White the latter transmit dispatches at an average rate of eight words per minute for each conducting wire, this new invention can transmit from 250 to 400 words per minute. A committee of the French Legislative Assembly, at the ad of which was the celchrated astron La Verrier, was appointed to investigate the nerits of this invention. They caused the experiments to be repeated in their presence message commisting of several the cods was transmitted to Lille and back, slong a single wire (the wire being united at Lille so as to carry back the message), at the rate of about 1,000 letters, or nearly 400 telegraphic words per minute. The committee epected favorably of the project, and the government ordered a set of apparatus to be naturated, to be placed in the first instance n the line between Paris and Calais. This ine was completed in the carly part of the last month, and their performance was witsessed by the correspondent of a London urnal, from whose account of the discovery ve gather our information. His own dispatch, which would occupy about a column of our paper, was transmitted and writen by the apgratus in his presence at the rate of 1,200 atters per minute. The characters were pereatly distinct, and the dispatch was read m them also in his presence

Interesting to Telegraphe For some time the line between Breadstown and Quincy, Ill., has been working very badly, and lately it was found impossible to get a icepatch through at all. The difficulty was at length discovered, the wire had caught in a large Lombardy poplar tree at Jacksonville, where it was crushed by a new growth of ordy matter, the wire exidized entirely in o, and the two ends so completely enveloped the new-grown word as to be pulled out ith much difficulty.

Singular lave We see it stated in our Western exchange that a gentleman near Louisville, Ky., ha applied the telegraph to an entirely novel and mique use. He has nearly completed an invention for writing music as it is played from the piane-forte, the notes upon the sheets being produced as fast and to the exact time, as the keys are touched by the performer. Street kosch has offered him \$10,000 for the patent

right when the model is finished. That this can be done is nothing a we think, for a patent was taken out by Bain to play on musical instruments by telegraph, out we do not see what benefits can be de rived from such an invention.

A Telegraph Swiss papers state that a machinist in the Canton of Schwyz, has invented a new apparatus for printing by electric telegraph, by which each letter is printed in any required kind of type, by a single closing of the circuit, and the motion of the letter is accomplished by the action of one magnet and one comtator only. The paper which receives the impression from type, moves in regular corention from type, motion of the operator and if he stops before the sentence is concluded, the paper likewise stops. The work is represented as equal to the best quality of

IWe have seen the above in a number of or exchanges, without note or com They do not seem to know that House's Telegraph prints all its messages in Roman chaecters, plain as print, and ready to be set up by the compositor

New Galvanie Battery. The following is an account of a new gal and battery described in the Lendon Athe-

"On the 24th ult., a party of scientific gen-tlemen were invited by Mr. Martyn Roberts, to witness a voltaic battery of new construction, and professedly of great economy, which he has at present in action in the neighborhead of Great Portland street. The battery consisted of fifty plates of tin about six inches by four,—each plate being adjusted between two plates of platinum of the same size .-These were placed in stone-ware cells about two feet deep, which were filled with diluted nitric soid. The object of these deep cells was, to obtain a marketable product which should be sufficiently valuable to cover the cost of the agents employed to effect the de-velopment of electricity. The upper stratum of nitric acid acts on the tin, and forms with that metal on oxide, which falls off from the olate the moment it is formed, and is precipitated us a hydrated oxide of tin to the bottom of the cell. This oxide is combined with seia ; and as sinnuste or sode is extensively emda; and as stantage of store in co-printing; it is stated that this product will yield a profit of 10 per cent. on the cost of the battery but this is a point which we are not at present in a osition to determine. The electrical action of the fifty pairs of plates was considerable. The rent was employed to exhibit the electrical light, and the effects produced were certainly very brilliant. It was not possible to muze it with the result obtained from Grave's hattery, but we judge their powers to be nearly equal. An experiment made on the decomposition of water gave about 27 cubic inches of the mixed gases, oxygen and hydrogen, per minute. We cannot but regard this very ingenious arrangement as an improvement on the ordinary batteries, as far as nomy is concerned, where an electric current is required, since the stannate termo must always be of considerable commercial alue. It is curious, too, that the stratum of fluid in the immediate neighborhood of the

voltaic plates is kept unitormly of the same specific gravity, netwithstanding that the acid is rapidly removed. The oxide of tin formed takes down water with it, and at the same time establishes a current by which fresh acid is applied to the plates. We were intermed that the battery continued in most

The Telegraph Cire Parms Part of its

There seems to be a doubt in the minds nany, in tracing the current through the cir wilt of our present one-wired telegraph; it seems to me to be a very plain case. In looking at the subject, let us take the most aimple form, that is, a battery with a few yards of wire connecting the zine and copper or oth or metals which may be used; we then have a circuit on which the current travels minter upiedly. New let the wire be separated and the ends brought in contact with the opposite sides of a long bar of iron, would not the current pass as readily and rapidly as before; again, if instead of the bar of iron we had a mass of iron as large as a house and the two wires attached near each other on the same side of the mass, or at opposite sides, would not the result be the same? Certainly it would; the current would go from one wice to the other through the conducting properties

of the massive icon as easy as the small wire.

Then again, if we were to have a battery upon one side of a broad river or bay and the wire conducted across, but instead of coming hack, to have it inserted into the end of a glass tube filled with water of one inch diameter, the tube ecceeing the river to the battery, and onnected to the opposite pole, the water in the tube would form part of the circuit and the fluid pass as free as it would if it had the whole circuit of wice. The same would be the case if the tube was one thousand feet in diameter. Again, we will dispense with the tube, and connect the wire on the opposite side of the river into the water, also the othe battery wice into the water on the battery shie of the river, would not the current pass through the river the same as it did through the small or large tube? In order to comprehend more fully, let us suppose that Lake Superior was perfectly isolated from all surrounding objects, and a partition through the middle of a nonconductor, so that one half should be isolated from the other, and one end of the circuit wire to be in contact with one half the lake, and the other circuit end in centact with the other

cent could be sustained? My own opinion, based on some pract and a good deal of study and reflection, is, that the earth, in its natural and moist state is a good conductor of electric finish, and that there is a cortain amount of electricity constantly dispersed through it, of the same density at all places. The reason for its being in the same state, is obvious, from the fact that the earth is a good conductor, and the instant there was more electric fluid in one place than in another, this same conducting property would convey it to places of less amount in-

pertion of the lake, who believes that a cur

I do not think that the corrent of electricity, a its grand circuit, passes on a narrow chain of particles, as it would were it conducted on an isolated wire, but that all the particles constituting the ground body of the circuit are invaded, for miles, cut of a straight as well as in a right line, the same as it would be if we took a plate of copper or iron one hundred Seet or more square, and make it a part of the circuit, it would not be presumed that the fluid would go atraight through from one side to the other without affecting the whole plate; it appears to me that the justant the fluid leave the one wire and enters the plate, the whole plate becomes positive compared to the wire on the epposite side, and with the velocity of lightning it leaves the plate, passes into and through the wire. I think the term absorbed gives us wholly a wrong bles of the factor as bey are the same in a ground circuit, only on a larger scale, that they lare in the abovenamed plate forming a part of the circle.

H: W. BERRETY.

PROF. PAGE'S ECONOMICAL CONSTANT BATTERY Figure 1. Figure 2. Fig 3

ing a quantity of warm shellac varnish into muslin, that this might be silverized and then

B. Control Control The Boston Journal describes, as one of the curiosities of the age, an electric clock recent ly completed by Mr. N. Farmer on an entireprinciple, and pronounced by selectific men to be the most perfect and simple of any. All wheel-work in the time-keeping part is dispensed with, therefore all friction is overcome. The time-keeping part of the clock is simply a pendulum, an electro-magnet, and two armatures. The vibrations of the penduhum break and close the circuit of electricity, while the combined action of the electro-map net and armstures keep it in motion. It is a clock that runs without weights or

springs, or anything of the kind. Its moving power is a galvanic battery, which requires small quantity of sulphuric seid once or wice a year; or if the workmanship of the clock is delicate, a copper plate buried in the ground will keep it in motion. There is no riction to be overcome save the suspension points of the pendulum, and the two armatures. Hence it approaches nearest to perfection as a time-keeper of anything in existence. One hundred or a thousand clocks all over the city, all ticking at the same instant, and keening the same time, may be carried by the pendulum,-IEx.

[The above parrgraph we have seen in a ober of papers. We have not seen the eaw in this city three years ago.

Speed of the Magnet Current. A long experience of the coast survey with some dozen different lines of telegraph, estab lishes the fact that the velocity of the galvanic current is about fifteen thousand four hundeel miles per second. The time of transi between Boston and Bangor was recently essured, and the result was that the time occupied in the transmission was one sixteenseamath of a second, and the velocity of the rate of sixteen thousand miles per second, which is about six hundred miles per second more than the average of other experiments. If it is desirable, the Yankee can be found who will make an effort to improve on this speed .- | Boston Journal. This must be slow electricity, for it he

ing ago been held to be a fact, by electrical ophers, that the effects of an electric current would appear at a distance of 578,00 miles in one second ; and after the it she truly be saids that the Velocity of election y has ever been traly measure a is all that can be claimed.

The accompanying angravings represent an, it, and pouring it off after the wood has abEconomic Constant Battery, invented by Dr. sorbed a sufficient quantity. If the outside of
Page, of the Patent Office. His description of the box is first variabled it will always leak, it is published in the last number of Silliman's B is an inverted wooden lox, varnished in the Journal of Arts and Sciences. The buttery is same manner; G is the negative conducting modification of Kemp's, and was invented plats of the battery; it is made of wire gauge or a perforated plate. The heat material Pro-Figure 1 exhibits two economical batteries, Page has found for this plate is a perforated constructed upon the basis of Kemp's, and in- plate of silver, platinized: this is expensive. relving the principle of Smee's battery. A and so is wire gauze. It occurred to Professor ha square box of word, made tight by pour- Page, that, by precipitating copper on coarse

THE RESERVE THE PARTY OF THE PA Electric Telegraph in Hospitals. The St. George Hospital, London, has an ngenious and novel application of the Electric Telegraph. It consists of a small dial, not more than a foot in diameter, with a hand which points to certain numbers on it. They refer to a printed scale over it, on which are the names of all the physicians and surgeons of the hospital; and it is intended by means of this wonderful agency to intimate the moment they arrive, that in case of danger to any patient they may be instantly seen. On the directions are also the hours for meals, the time at which the friends of the sick must leave the time for operations, and every other matter desirable to be known in the wards where it is thus intimated. The dial is placed in the hall of the hospital, and as the message is to be sent, so the corresponding number is found on the direction-table, and the hand is turned to a corresponding one on the dial. This causes a bell to ring in each ward, which indicates that the nurses are to refer to the dial-for they are pieced throughout the establishment -when they will find the same number pointed to as the one in the hall, and by referring to the directions they at once see what the message is. This saves a vast deal of confusion in running up and down stairs, besides being more desirable for the patients, who will be exposed to much less noise. It is probable clock; but, as described above, its operation is that this admirable plan will soon be admired exactly the same as that of Bain, which we in all similar establishments, as well as nei-

> Electro-Magnetic Fire Alarm. Mr. Henry Van Austell, of Eaton, Oble writes to us saying he has invented a Burglar's Electro Magnetio Fire Alarm, which is pecu liar in a number of particulars. It is of such & a nature that any number of houses may be embraced in a circuit, and when one is being injured by fire or entered by burglars, the alarm's is given at any or all the others, and In such a manner that they can know in a mo ment the precise point of disturbance; its construction is simple, it consists of a series o two or more circuits (operated by the same battery), one of which is closed by closing dears and windows, which, when broken, releases clock-work, driving a signal wheel oprating on the key of the other circuit, &co.

At the present moment, electro-magnet a a moving power, is engaging great attention and study; wonders are expected from its application to this purpose. According to the sanguine expectations of many persons, it will shortly be employed to put in motion every kind of machinery, and among other things will be applied to impel the carriages of railroads, and this at so small a cost that expense will no longer be a matter of consideration

Such expectations may be very attractive nd yet they are altegether illusory! they will not bear the test of many simple calcula tions; and these our friends have not troubles themselves to institute

With a simple flame of spirits of wine, u der a proper vessel containing boiling water, a small curriage of 200 to 300 pounds weight can be put in motion, or a weight of 80 to 100 nounds may be raised to a height of 20 feet. The same effects may be produced by disolving zine in dilute sulphurie neid in a certain apparatus. This is an interesting discovery: but the question to be determined is, which the two processes is the least expansive?

If we require 8 pounds of exygen to produ a certain effect, and we wish to employ chlorine for the same effect, we must employ neither more nor less than 35 1-2 pound weight. In the same manner, 6 pounds weight of coal are equivalent to 32 pounds weight of

Heat, electricity, and magnetism, have a nilar relation to each other as the chemical quivalents of roal, zine, and oxygen. By a tertain measure of electricity we produce corresponding proportion of heat or of magne-tic power; we obtain that electricity by chemical affinity, which in one shape produ heat, in another electricity or magnetism. A certain amount of affinity produces an equivalent of electricity in the same manner, as, on the other hand, we decompose equivalents of chemical compounds by a definite measure of electricity. The magnetic force of the pile is therefore limited to the extent of the chemical affinity, and in the case before us is obtained by the combination of the zine and sulphurie cid. In the combustion of coal, the heat results from, and is measured by, the affinity or the oxygen of the atmosphere for that sub-

It is true that, with a very small expense inc, we can make an iron wire a marnet capuble of sustaining a thousand pounds weight of iron : let us not be misled by this. Such magnet could not raise a single pound weight of iron two inches, and therefore could not inepart motion. The magnet acts like a rock, which while at rest presses with a weight of a thousand pounds upon a basis: it is like an enclosed lake, without an outlet and without a fall. But it may be said, we have, by mechanical arrangements, given it an outlet and fall. True : and this must be regarded as a triumph of mechanics; and I believe it is susceptible of further improvements, by which greater force may be obtained. But with every conceivable advantage of mechanism, no one will dis pute that one pound of coal, under the boiler of a steam engine, will give motion to a mass several hundred times greater than a pound of zine in the galvanie pile.

New Galvanor Dr. Friedrich Müller describes, in Poggendord" Annales, a new form of galvanometer with improved reading and deadening arrangements. The needle is immersed in giyeerin diluted with one eighth of water, and above it there is a horizontal tube of glass in rigid connection with it, to which the suspendir thread is attached. Platinum wires bent vertically upwards from the ends of the tube are in a plane with the suspending thread. And the zero point of a scale, seen beyond, is in a line with these three parts when the needle is in its normal state of rest.

SCHOOL STATE OF THE PARTY OF TH I received the following letter from Prof enry, of the Smitheogian Institution in reply to the account of my serial voyage from ortsmouth, Ohio, on the 3d inst., and of which sent you a copy. The hypothesis here laid was, seems to be strongly sustained by the acts as I witnessed them during that voyage. would here remark what I forgot to men ion in that account, that the electrical discharges in the lower cloud seemed to me at the time to be caused the same way that corcations are caused on the surface of the Lightning Jar," because the cloud stratum his always broken and imperfect on the uper surface, where these discharges took place the fluid jumping from one point of cloud to to other. As these tacts must be interesting meteorologists, particularly electricians, and a my account has been nublished. I will here nata Peaf Hanarda letter :---

SUPPLIANTA INSTITUTE June 16, 1852. Dear Sir-Please accent my thanks for the opy of your account of the phenomena ob served relative to the thunder storm which ou encountered in your last adventurous seri-

The fact of two clouds, one above the other with a discharge between them, is in accordince with the hypothesis that most of the elects of atmospherical electricity is due to the nductive influence of the electricity of space round the earth and beyond the atmosphere cording to this hypothesis, the atmosphere of our globe is in the condition of a charged Loyden isr, of which the outer coation is the vacuum beyond the air, the inner coating the arth's surface. The clouds in the air, between these coatings, are affected by induction, thus,

> AND FOLLOWS T Company of the last of the las

the space without being 4 and the surface of the ground -, then, as a cloud ascends, the upper surface will, by induction, become strongly - and its lower surface +. The ne will also take place but with less intensity in the lower cloud, and it the two be sufficiently near, the electricity from the uppe will mass to the lower, and this in turn will discharge itself into the earth with load ex-

If I could have an opportunity of being with you at starting, with a proper supply o apparatus, I would be pleased to suggest a series of observations. There is a gentleman ow connected with the Smithsonian Institute, who would be willing, had he an oppor unity, to make an excursion with you tor the urpose of observation. Very truly, your obemtservant, Joseph HENRY, Sec. S. I. John Wise, Esq., Aeronaut." Lancaster, Pa., June 26, 1850. Electro Magnetle Passenger Index.

The Leaden Times describes a new invenon of a Mr. C. Pownal, for telling the numor of persons who go in and out of connibuses and stage coaches. Underneath the omnibus, in a small box, about nine inches goverscured with a Bramah lock, there is a small stery; the pressure of the passenger's foot spon the step moves a spring, and, bringing two please of metal into centrol, completes a notallic circuit in counexion with the battery. and the invaterious current is made to flow through an electro-magnet, which attracts to it a piece of steel and drawing it up, a ratchetwheel is caused to move one tooth forward, and the index-hand or finger of a dial to be pushed cuward one degree. As each degree upon this dial is numbered, the hand advance ing from number to number indicates how many persons have passed over the sten at the omnibus-door since the dial was set. This brief statement will give the general likes of the invention. Considerable pains appear to bave been bestowed upon the details. [By this description, it will be observed by

those acquainted with the telegraph, that the step is employed for the same purpose as the ery of the telegraph. It could not very well applied to the connibuses of this city.

We are requested by Prof. Mathiot, of Washington, whose name appears in the notice of

Journal, and copied by us in our last number, to state that Prof. Page is quite in error in supposing that the instruments which Prof. Mathiot exhibited to him in use, are the same in construction and purpose with the apparatus figured and described by Prof. Page, in Silliman's Journal, and in this super last week. and that Mr. Mathiet, instead of thinking highly of Prof. Page's apparatus, is at a loss to conseive of environ it might he for much less can he conceive how the learned professor can expect his instruments to possess the qualities and were he claims for them, while they whilit in their construction such gross disregard for the first principles of electro-chemisby. Prof. Mathiot further states that Mr. James Green, of 442 Broadway, New York, in conjunction with himself, effected a combi nation of the batteries of Smee and Kemp, in ushigh improved bottory nothing, is consumed for which equivalent work is not obtained which delivers its sulphate of zinc in the solid form, instead of in solution, gives a stronger current of quantity than nov other lettery of count surface, will maintain a constant action for any desired time, and suffers no deterioration when not in use. These batteries were made of silvered and platinized wire-gauge, of nerforsted and platinized plates of silver and platinum, and of metal-luce or open-work plates made by electro-deposition. And all this was done in 1845-47, and Mr. Green has now in his store at 442 Brendway, some of the batteries then made; no other person ever had any.

He also says that no description of any hattery answering to the above was ever publish ed by any person in any fournal prior to the present year, except by himself in the Scientific American for 1850.

Also he says that if any professor of science will controvert the above, that then he will. in the columns of this paper, by quotations from the scientific journals, and by mathematical and by chemical principles and reasons prove that the above is entirely correct. and gives useful modes of constructing and using batteries never yet roblished

PROF. PAGE'S ESECTRO-MAGNETEC ENGINE -This Engine, which was illustrated in No. 2, of this volume of the Scientific American, has recently been patented in England as a " Commication," by John J. Greenough, Esq., of Washington. The motive power of the invention is denominated in the specification Electro Dynamic Axial Power." The eleentary principle on which this invention is based, is that of the axial force by which a belix, containing an electric current, draws a magnet within it in the line of its axis, the magnet at the same time reciprocating the action of the coil in an opposite direction. There are no less than twenty-two claims in the patent : one is for a succession of coiled magnets in a line, to give a straight bar a direct motion, or a curved bar a rotary motion. Square wire to form the coils is also claimed, when such wires are wound believly backwards and forwards over the entire length of the coils. A succession of small hollow coils, to be cut off one after another, throwing the current shead, as the bar moves along, forms another

We are indebted to our invaluable exchanges, "Newton's Repertory of Aris," "Patent Journal," "Mechanica" Magazine," and other London Journals," and to the "Genie Industriel," &c., of Paris, for the above, in sub-

Electro-Magnetic Annunciator for Hecels.

It is well known that the American Bell Crank Annunciator for hotels, whereby a number is shown in an opening in a box in the office, agreeing with the number of the room in which the wire has been pulled, peasesson not a little celebrity, and justly so. The one, however, shout which we are now going to may a few words, is as far superior to any other that we have seen, as we can imagine The numbers of the various rooms are consed in a box, blocked out with small win-

dows, like a chequer hourd; behind each window is a small recorrend on the back partition of It there are the numbers of the different rooms stationary-one number opposite each amail window. There are a set of slides, with a notch in each teach one capable of being moved singly), which are moved up by an arm to cover the numbers of the rooms, and hide them from view. There slides are iron, and when they cover the numbers a small pin catches each and holds it in position. Behind each slide is an electro marget, connected with a miss to a bettern and a ken with the avanta of the room on it is placed in each room, while the lox speken of is in the har-room. By pressing upon the key the eigenit is closed, a bell is atruck in the bar-room, the slide spoken of before is attracted by the electro-magnet. falls down and the number of the room is uncovered in an instant, and shown in the small window. These is a wire for each key : the action is very rantd, and none of the parts liable to wear out or be broken. A small buttery, to work this Hotel Telegraph, will only have to be renewed about once in three weeks at but little expense, and the whole can be constructed for less money than any of the old annunciators. The inventor of this is Mr. Buckley, but we saw the instrument at the Telegraph Rooms of Mr. Norton, No. 177 Broadway, the assignee and manufacturer, and where one may always be seen. It is a beautiful and logenious instrument, and we

understand that all the new hotels are adopt

ine it and so they should.

Another Discovery of Mr. Palm. GENTLEMEN :- Some time since I selected our paper as the mediam through which to ence the discovery of a method of decomnumber weter by mechanical means and at a cost of the interest of the machinery used, only. Since the announcement, various publie and private exhibitions -have proven the truth and success of the discovery to a suffi close number to substantiate the fact and ince the aunouncement too, the great man of the scientific world have denied the mossible lity of the results claimed, while some have as sorted claims adverse to my priority of discovery. I have therefore succeeded in what I atcontrol, viz.: the establishing of an indiana. table claim to the priority of the mothed or

While the plan of keeping my own accret on been productive of such desirable results. it has also enabled me to presecute further experiments with the newly discovered respective of electricity, unmolested and unemburrassed by contentions with others and I now with the same views and feelings that I made the conneciment, have the pleasure of etating that I have succeeded in making certain bodies repellent, or repulsive to water, when immercal in it. For instance—the schole area face of a vessel's hottom and sides, (of a reuliar form) from the stern post to the broadest cross-section, has, by a peculiar electrical state, a repulsive action upon the finid, which buoys it up, and consequently the vessel has an onward motion so long as this electrical action continues. This electrical action is forpished and continued by magneto electricity. and if the vessel's course is in a circle, her me tion will be perpetual. Now I do not ask, do not expect, or wish.

that the scientific world should believe this meancement-I only hope that they will deny it, and this hope is predicated of the same feelings of self-interest that have youerned my actions hitherto. The nature of nav ents involve at least the resultility of my being auddenly removed from this experi mental world, and although I am not rarticularly ambitious of posthumous fame, yet, as far as that fame may benefit the loved ones I may leave behind, so far am I jealous of my rights; and this is one great cause why I take in black and white in your columns, is vance of their full completion, the discov that I am making so that in after time ... isoute can arise as to time that date

I am aware that I have opened a fine field for learned bodies to practice scientific gambois in, and I have not yet foresten the insult and abuse which the first announcement brought lown upon my head; yet, nevertheless, I shall keep my secret till I accomplish one more un dertaking, though the cry of " humbug !" follow me to the mad house. Yours HENRY W. PAINE.

Worcester, Sept. 9, 1859.

S1300

Paine and his Blettele Light. HESSES. Entrons-What has become Palne's Electric Light?" Alss, for us Now Yorkers, after being raised up to the skies, in anticipation of beholding the great light, which was to eclipse all our murky looking candles oil, campbene, and gas lights, we are still compelled to grope on in the old fashlened way. early took the opportunity, page 61, Vol. 5, Sci. Am., to expose the absurdity of Mr. Paine's alleged discovery, and in a number of letters published at various times since, in the same volume, left him no room to shirk his first announcement, made two years ago, on the 20th of the month of December, and which he has never yet fulfilled. In a letter, by refeering to my Vol. 4, page 101, Sci. Am., Mr. Paine there announces that he would expose his light for one year to the public, " and the different scientific bodies of America and Ru rope, to allow any person to establish a prior claim to the invention, if they could, and afterwards he was to make public the mechan-ism of his Generator." This he stated in his circular. He has not fulfilled his promise to the public, and the reason, no doubt, is a good one-he cannot. Two years have expired since he published his first letter, but the pub-He have yet to know how Mr. Paine preduce

Mr. Palue has announced a new discover reside his first light, viz., his letter in No. 3 this volume of your paper. His alleged die covery there about his whirl-go-round electric discovery, to propel vessels. In more ridirulenthan his light. Before he anneunces any more discoveries I hope he will fulfil his first neo mise, and give us comething more than more ombastic assections about his inventions.

met less than two dollars.

It is very wrong to abuse public confidence by playing upon the marvellous-it cannot be done with impunity. After all the excitement about this light-it is no where. His letters were published in all our papers, and couled into European journals, and after all, it has corad out into derkness, and his take discourry of perpetual motion will go the same road. It is so easy for Mr. Paine to disabuse the publie mind, if he has discovered anything, which I don't believe, and will not believe until see it and know all about it without he has no ness to complain if he is looked upon as a chimerist. It is a great pity that he was not more careful, predent, and cautious in making his first announcement, but his last caps the climax of all. Let the first be demonstrated and then the public will be able to believe and digest the last-not before. CARREDRATE

LiThe Municipal Telegraph... Who was the On pages 210 and 227, Volume 7, Scientif. m, there is a description of the Municipal Telegraph, which demands some attention from me, as I claim to be the original, and have thought myself the for inventor, On page 516, Vol. 6, Scientific Amer be found a brief description of an " Electro Magnetic Fire Alarm,"-another name, truly, but the same combination of essential parts. And here I take occasion to say, that I never heard nor read a description of any such combination as my own, until some six menths perhaps, after the publication of that article In 1850, a model of my invention was publicly exhibited in Enton, and is yet in existence so far as I know. At the same time I exhibited a drawing and description to a number of stientific gentlemen in Cintinnati, Ohio: shortly after that I applied the "Alarm" to my own house, near Enton. And on the 20th day of January, 1851, I applied for a patent. When I first conceived the "general principlea," I cannot say. There is a portion nvention that has not been adopted by Messra. Channing and Farmer; it has never yet been described in any printed publication that I am aware of, it is the mode of constructing the afferent " or sensitive circuit, that dispenses his cheap light-1,000 lights of which here with the aid of a policeman in giving an ing for 5 hours every day for one year, were to "alarm," either of fire or burglary; he, with

Securi as

of mu

gree of hent; this is done that the circuit may be easily broken by the action of fire. I am ambitious of an honorable fame (I say it trankly), but I would not appropriate the hard studies and honest achievements of another to that end; if I cannot honestly and hoorably accomplish that, which would entitle me to the good esteem of honest and honorable men, I would desire to remain as I ammnoticed and unknown; and, if Messrs, Chanting and Farmer are the first inventors of the "Alarm," I will cheerfully religious my claim to that honor. HENRY VAN AUSPALL.

others, receives the intelligence from the

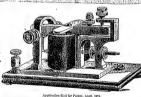
alarm. The sensitive circuit is " broken, lap-

ped, and bound with some combustible mate-

rial," at certain points of danger, or where fire

may exist; or the connection may be made

with a metallic solder that melts at a low de-



The length of time required to attain a given thickness of gold, will depend altogether or the rapidity of the battery action, and this must be regulated to the strength of the solution, and also its temperature With a hot and very strong solution, kept briskly soctated the ridelmony of sullnery letter namer can he attained in ten minutes.

Some metals will not receive the denseit of ends on if they do receive it the donnelt slow not adhere : such metals must be first coated with comes or silver before midding.

As the solution is deprived of gold it be omes less dense, and rises to the surface, benea these to almost an execution auteurt of arbanatal adution around the article being gilded. Any projecting ledge which may re tale this exhausted solution will blacken, althanels the body of the work may gild uleus. Continual softition of the solution will so fa to obvinte this, but will not entirely resvent it

The first deposit of gold has all the nolish of the article receiping it, but as the thickness of gold increases, the polish is lost, and altimately, if the rescens has been conducted very slowly, the surface will attain that beautifu dead appearance called frosted gold.

It is well, in denositing a thick film of pold to take the seticle several times from the both and brush it well with chalk, on a stiff brush this removes the incipient reveliness, and can es the cold to be deposited very exculse this should invariably be done after the least appearance of the black deposit.

The colution used in gilding may work very handsomely when now but in a few days of expressed to the air, it will become deteriorated. and ultimately, if continued expreed to the air, it will not work at all. When the detecteration has runs so far as to be troublesome the solution may be washed as follows :-- add dilate salebusic soid until the brown denielt of cyanide of gold ceases to spacer, then wash well the precipitate and re-dissolve in evanide of potassium; this will generally restore the on to its pristine qualities.

The solution, when not in use, should b kent in a well carked bettle

As the evanide of notassium, when disease red in water, forms pressio sold, which is the meet fatal of all poisons, too much care in keeping the gilding solutions from the reach of children, and others unacquainted with its unture, cannot be used; this substance is not only poison when taken internally, but by merely handling the articles when taken from the bath, the fingers sometimes become badly sloerated. There is no necessity to get the solution on the hands; there should always be a vessel of wates to rimes the article as soon as taken out. When the amount of solution thus transferred to this vessel topognes of value, the cyanide of gold, or other motal, may be recovered by adding sulphuric sold, and after collecting the procipitate, it may again be restored to the bath.

This discovery has been patented at Berlin, by M. Siemens, Llout. of Engineers, who has assolated himself with the natroness watch maker, M. Zieża, for that purpose. As there exist already at Berlin, electro-telegraphic wires for signalizing fires, the same apparatus will also be used for the clocks. There will be established several leading clocks in the different parts of the town, which. being connected with the wires, will indicate the time on simple dials. The cost of such a clock and wires will be twenty-eight thalers the subsequently yearly expenses only four thalers, Such apparatos can be applied at any reivate house, and an additional advantage would be, that all these watches would

keep an uniform and exact time. (The above we take from an exchange, and from the elements linen, it, no doubt, was origin inally relected from a German neriodical. We have seen the same story in a great number of our exchanges. The electro-magnetic clock is not quite, a recent invention. Bain obtained the first natent for one in 1841, and we naw some of his clocks in this city, three years ago. In 1847, one of his clocks moved others 40 50 and 60 miles distant

The Electric Telegraph in France. France is far behind in the establishment of telegraphs, and it has always thrown obstacles in its way, The "National" paper complains as follows about it, in which it appears the philpsopher Leverrier receives and deserves

ults in in voin that all foreign nations are rivalling each other in activity to realize this to suit your music. The whole affair is an marvellous invention which has placed the lightning at the disposition of the mail; our the brought into universal use with the expen-Administration has discovered the secret in diture of a little money," making electricity itself go at a walk. M. Leverrier has put in the way the thickness of by two different persons at once. his own mind, and the most subtle of all fleids cannot get across it. A few odds and ends of etched along the lines of railroads; a small office in the Minister of the Interior. where a dispatch, subjected to the most inqui sitorial formalities, and to an exorbitant charge, is transmitted by most wretched contrivance-this is all we nessess : and you will yet see the galvanic fluid make the tour of the globe, passing by Moscow and Pekin, before there will be an electric telegraph between Lyons and Chalons-sur-Sone

Now what is wanted to bring about thi latter result ! A line of poles planted along the line of the Soane, after the American man nor-a thing of course out of the questionaccomplish the first, you must span two oceans; yet the English will do it; and if they do not make haste the duty will devolve upon the citizens of the United States. The question is already under study, and the submarine wire that connects the two shores of the Channels is only a specimen, by way of trial. If, in the Annual his new work, French engineers a comment to innetion, they can at least assist by their ideas, and it is in this view we must receive a proposition made by one of the them to the Academy of Sciences ; M. Aristide Dumont, applying to the ocean telegraph the observations he has made upon the land wires, proposes to suspend the electric cable to floating buoys instead of lay. or defend themselves against an attack. ing it upon the bed of the sea or sinking it to a certain depth. This original bles developed by the author and supported by numerical calculations, deserves the attention of the

We find in the Jersey City Advertiser the following notice of an improvement

musical art, by Mr. Levi Wilder, of that city: "This mechine's utility consists in being th medium through which new nerson-especial ly those accuminted with the piane, melodeor and other instruments constructed on this principle, man have their inspirations weit. ten down by touching here arranged as they are on a pinne. The whole affair occupies about one square fost of space. On the back part, marbinery of the form, and principle of the magnetic telegraph, is completely arranged, and carried or set in metion by a weight similar to that of a clock. On the front part, koys are arranged precisely as they are on a piane or melodeon, and connected with balancing machinery to the telegraphic apparatus. Put the machinery in operation the same as you would a clock, and the te

larranbie rispar mayor as on a representic telegraph machine. Then touch the notes, or play the time as the soul-dictates, and each key you touch, and the length of time you keep your fineer upon it are marked mon the paper-thus giving you the notes of your inspirations, and exabling you to write your tune without any difficulty whatever. In connection with the wire noints which mark notes on the paper, are bar points, carried by

the same muchinery. This is so arranted with an indented wheel that when you make the bar in your music, it falls and leaves an mpression agreeably to the notes you touch, ngenious contrivance, and we believe could [This invention will therefore he claim

Electricity.

It has now become very well known th the electric fluid pervades all nature, and that its properties are in many respects analogou to these of light and heat. It is probably identical also with the attraction of gravitation, and some have even supposed that it is one and the same thing with the vital principle. Electricity and magnetism are also one, and the epinion that it is the one universal force, of which all others are merely modiileations, is rapidly gaining ground. velocity with which the electric current travols along metallic wire is proligious. Fur. ther observations may probably show that light and electricity are altegether identical. The electric fluid pervades all matter, all bodies, and all space. The earth is full of it -some objects, such as metals, being better retainers of it than others. Some human belugs are fuller of it than others, and possess he property of giving off sparks of electricit

when in particular states of health. Many animals are highly electric—the cat, when subbed before a fire, becomes an electric machine, and there are fishes and cele which nicate a smart eleictric shock when touched. They often use it to atun their prey

The Electric Plans Mr. Davenport of Salisbury, Vt., we learn, claims to have made an improvement in plaengineers, who, in bringing together the two now, causing the musical chord, by means a engineers, who, in pringing togetour this who electric magnets, to continue an equable and shores of the country are to accompany me recommendation for any length of time. The perpetual and hitherte incurable defect of the plane forte is the impulsive and evancecent mature of its tone, and though great improvements have been made upon it, and various

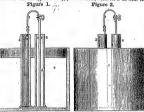
levices have been elaborated to prolong its

notes in some degree, yet the want of agus. tained vibration is still an inherent defect in

that beautiful instrument.

ELECTRICAL PROCESS OF PURIFYING LIQUIDS.

The accompanying engravings illustrate an sing electricity for the purpose stated, according evention for extracting impurities from forentable and other liquids, secured by patent in the engravings-figure 1 being a vertical in England and America, to Mr. Andrew section, and figure 2 a side elevation; a b are in England and America, to Mr. Anniew section, and agare 2 a sine elevation; a o use Crosse, of Bloomfield, Somersetakire, Englands porous earthen vessels, immersed in the liquid The invention consists in applying electric cur- to be operated on, so that the unperpart comes ents to act on the liquous to be purified. In above the liquid, and when such apparatus is rents to act on, the lagorer to be pursuen. In justice, in justice, and under the highest or discribing the figures are the same and to be used in or applied to a closed vessel content can be applied before, during, or after faising the liquid to be treated, the upper parts mentation. The best apparatus for apply- of the vessels, a b, rise out of the vessel con-



taining the liquid, and are open to the atmos- and afterwards operated on by the electric ac nheer, c is the containing vessel, and it may ition, as set forth. be of any size. Supposing the said vessel, c, sea water, it should, in addition, be made to to contain wine, beer, or other fermenting ii- poss in small streams through the uir. Filter-quid, the electric apparatus is made to not upon ed water for drinking should also be made to the liquid during fermentation, until it is as- imhibe the atmosphere in the same way. Wacertained that the proper degree of attenuation ber, without being charged with air, is very inhas been obtained, when the pure liquid is re-sipid to the taste. This invention, it is also has been obtained, when the pure injust is re- sipin to the tasic. This invention, it is and ed in the versus versels, a & which are charmilk and keep it sweet, by the same means erd with clean water daily. In the resset, a, and action as that described for the wine, by there is a whole of since of and in the vessel, h. simply placing the milk in an open vessel

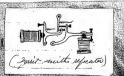
is placed a coil or cylindrical frame, x, fig. 1, like c. iron wire, and these are connected by a The claim of this patent is for the prodict strip of sheet-group. The specification states tion of electric action to separate or extract that the electric action on fermented liquid, in impurities or matters from fermentable, fera closed cask or other vessel, prevents it be- mented, or other liquids. We have present coming sour. The above apparatus is to be the substance of the official specification deriintroduced into a cask or other vessel, in such ved from the Patent Office. We have not exmanner as to leave the vessels, a b, open to perimented with the apparatus, but the inventhe atmosphere, and by such means may wine, for must have been fully satisfied of its merits beer, and other fermented liquids be restored or he surely never would have been at the from partial acidity or sources, and preserved enormous expense of five hundred dollars for from becoming more acidalous. The inven- the simple fee to our Patent Office. In Engtion may also be applied to purify water, and I limit it cost him somewhat more than this, but for this purpose a similar vessel to c, and a like these sums are nothing to the benefit which apparatus, may be used. The impurities of can be derived from the invention by the pub the water would be precipitated, and any acid lie, if it accomplishes the objects stated. It is or alkaline properties would go to the vessels so very simple that any person can construct a d, and by such simple means will water he and use it; and in presenting it thus before our

To improve the taste of the

found to be purified. In applying the inven-readers, we believe it will elicit no small tion to sea water, the water is first distilled amount of attention

It is put forward as a perfected improvement of their driplant Giral Security, which Sec., a rought of the excellence over all others, to mate an extent even, that unserspondent instances have provide opened, etc. to their own. This cane, inneverse, is fully protected in every perceival detail by our chirals may be interested for the contract of their own. This cane, inneverse, is fully protected in every perceival detail by our chirals in against the contract of their own.

haster or deleterors. This cost, however, it fully protected in every posterior detail by our cludius re-tail this south next. provides and accumulant accessors, as the common the contract of the cost of the



Clock Telegrapi On looking over No. 20 of the present y.

ime of the Scientific American, I find an ar lume of the Scientiste American, 1 and un ac-tical headed "New Clock Telegraph;" thir invention, recording to the statement in your journal, is of English origin. Permit me to nform you that I claim priority of said invention, from the fact that I made my first attempts, in the early part of 1845, to transmit we or more messages over one and the same rire at the same time, since which time I have brought my muchines through various forms and improvements, until I am now able to present the public with an instrument but little more complicated than the Morse ma chine, and which is capable of transmitting from 600 to 1000 letters per minute. I therefore send this communication, wishing thereby to establish my rights as the inventor of said principle. My machines, according to the description of the English invention, as given in your journal, differ in their modelling, mine having no pendulum, nor anything relating to one, but works with a straightforward rotaing motion, and possesses one decided advantage over every other Telegraph yet invented. it consists of an apparatus attached to the one machine whereby the other is corrected, without the hand of the attendant. The number of corrections in a minute, in case of bad and cormy weather, can be varied from 20 to 500 nes, thereby obviating the necessity of renetition, as commonly practiced upon the present established telegraph lines. I have withheld my invention from the pub-

the idea for the time. It was my intention b have exhibited my machines at the great Annual Fair, last Fall, for the purpose of establishing my rights, without projudice to the above invention, but owing to some improvenests added to them, I was unable to get them finished in season. The time is not far distant when I shall place my improvement on exhibition, when the scientific public of this country will be better able to judge of their DAVID BALDWIN. Paterson, N. J., Feb. 2, 1852.

Science and Arts, Improvements &c. ELECTRO-MAGNETISH AS A MOTIVE Pow-ru.—At Portsmouth, on Wednesday, says the London Mining Journal, the Lords of the Admiralty inspected the model invented by Mr. Hay (for unxiliary screw vessels) to su

As the motive power the galvanic battery is to supply the place of the boiler, the machi nery will be much less cumberrome occupy much less space, and be less complicated than the ordinary steam-engine; great space will be obained for provisions, &c., now occupied by the coal bunkers, steam funnel, casing, &c. Their lordships felt much interested and remained a considerable time inspecting the aragements, paying considerable attention to the observations of Mr. Hay, who merely asked their permission for trifling alteration to be made in the fly-wheel and beam, and stated that nothing more would be worth white doing until the economical buttery he had at present under trial had succeeded; that all battery arrangements brought under his notice had been carefully tested for the purpose, and any others proposed he would wilingly submit to the test, to ascertain their vaue as applied to give motive power, which would be attended with very little cost, by his power testing muchine. In the battery they sed, the chief consumition was in an water infused as one of the elements of the buttery

Prof. Jacobi, we believe, was the first per son who applied electro magnetism to peopel a vessel, and he was very successful, still it is not by any means so economical a power as steam. Some important discovery in electrochemistry, may de recommical, and to that quarter alone me. The electro motive 33 economical, and power inventors look for success : notice that partment they can, we believe, labor with nes of ultimate success.

of column, and cierido of copper. Yellow:-Selation

The Electrical Properties of Flame-Light.
Prof. Buff, of the University of Glessen, ha contly published an interesting paper on the electrical properties of flame. He has come to the conclusion that gascous bodies, which have been rendered conductable by strong heating, are capable of exciting other con ductors, solid as well as suscous, electrically. Two small string of platinum were jutre seed into a glass tube closed at one end ; they were separated by an interval of a thin lin of air. The sir within the tube could not he heated to a degree audicient to permit the dectricity of two of Daniell's cells to pass through it. When the class became soft by heating, and both pieces of platinum were permitted to teach it, a strong deflection of the needle of the galvanometer was the con-

quence. When the strips of platinum were excests to the direct action of the flame of a spirit lamp, the first notice of the passage of the electricity was obtained, when they were placed at about three inches above its extreme point, and began to show signs of reduces. The deflection increased as the strips were lowered in the flame. When the flame was strongest there was a permanent deflection of 70°. The flome current passed always from the hottest platinum strip through the separating interrul of eas to the other strin. When the metallic wires or other consectors, connected at one end, are bought into contact with bliebly heated eas, it formed an electric circuit. One platinum wire was introduced into the obseure centre of the flame of a lump, and the other wire true brought none the outer surface of the flame, a current of electricity limmediately exhibited itself, which passed through the flame from the inner to the exterior wire. By properly connecting a platinum wire, which was dipped into the of the flame, with a condensing plate, the latter became charged with negative electricity, and hence Prof. Buff concluded that positive electricity is given off by the outer surface of the flame.

It is our opinion that more discoveries will yet be made respecting flame and light. What In my bear of flame execution this "it is the arbibition of a certain prior of certain stances, such as carbon, hydrogen, and oxygon ?" Flame is an exhibition of these guses in a certain state. This definition is exendingly unsatisfactory : we are in the durk, yet, respecting one of the most common and simple chemical phenomena. There are hones of some rew discoveries being made, by diting the attention of electricisms to this field of investigation. Actinism, and the regood discoveries of the properties of different colored roler rays, are enough to incite philoophers to investigate this subject with great inspire. We have links, in the particular excited action of some chemical substance: we do not call light a substance spart and disinct in itself, and yet it has exceedingly pecultar properties, and produces many exceed-ingly peculiar effects. We are still ignorant of solar light-that is, how it is produced. Nalentifie Nemoranda.

Vergerry or Sound Over Wing .-- Sime experiments in regard to the velocity with iron wire, have just been reported to the Paris Academy of Sciences. The experiments eers made upon the wires of the electric telamanh established along the Versailles railroad a the right bank of the Seine. The result was that sound is propagated over wire at the ate of 11,434 feet the second.

The Electric Telegraph in the East Indies.
The "Friend of India" says :- "The local aners have just appounced that intellige has been received from Diamond Harbour by mann of the electric telegraph. The direct ration was opened between that stathe and Calentts on the 3rd inst., and it is found to have succeeded most completely and entisfactorily. It is as superior in precision as it is in speed, to the old semaphore; besides which, it possesses the advantage of boing water, it possesses the advantage of tonic have who have been trained in the novel selence of signalling have sent up the names of French vessels, of their commanders, of the port, and the date of departure, with singular accuracy, though must of the words ween in French. In the infancy of our operations it is found more advisable to adopt the emotion of analities; because through year slow and difficult it is far more certain than th use of numbers. We have now to walt the effect which may be produced by the heavy value of the next rainy season man, the experiment, before any confidence can be pisced in its anness. Should the result correspond with our wishes the question may be considered rips for decision, and it will then be for Government to decide whether the sum of ac---- labbe and a balf of sunces abalt he expen-And for two appointing years in the establish ment of a line embracing Calcutta, Agra, Bombay, Simiah, and Lahore. All that appears at present to be required to give these stations name from I orden within the mouth and to render the surreme Government ubloud tons, is £150,000, or the amount of two days gross revenue of this empire. Indeed, as th last intelligence from England—that of the 7th of March-reached Bombay in 27 days, it would have reached Calcutta by means of the telegraph in the same neeled. There is every reason to believe that the telegraph here will prove successful. The simple composition

which Dr. O'Shaughnessy has used as coating for the wire appears little affected by damp. It has apparently triumphed over our two greatest enemies—the heat and humidity of the climate. It is formed simply by beiling one fourth of seein with those fourths of fine lasted. As soon as the compound is seed it becomes as hard as a stone. It is adapted for roofs. We have expende it on a piece of wood for three days to the burning elistering sun of April, and have buried it in water for two days together, without the slightest deterioration of its consistency."

[We wish to direct attention to Dr. O'Shaue] essy's composition for coating wires. It appears to us that this same composition would make excellent payements around houses, such as for the courtyards, alley and garden walks, It is well worthy the trial by some of our enterprising people. We know that roofs have bosn opvered with pitch, and gravel and sand nadded in on the surferences like this year method better, and have no doubt of its good Electricity, Metals and Water

Means. Entrons-The simple annotation ent that water could be readily converteto gazes suitable for purposes of light and oat, by mechanical electricity, had nothing in it to startle the scientific world; but the statement that came with it, that water was convertible wholly into the one gas or the her at the option of the experimenter, raised s clamor among chemists that nothing short of years of demonstration will allence.

As a matter of some interest and porhap useful amusement to your readers, I peopos to show by assument and demonstration in as short a space as possible, that the exreleased to the U.Coromoultion? of water from Humphrey Days's day up to the present time, have all been based upon two false positions ; first that the decomposition was due to the vassare of the electric current through the the electrolytes; and second, that two separate volue or electrodes were regulard to enter the electrolyte, such an arrangement being scossary to effort the first mentioned require nent. That these propositions are otholox, I ounts Prof. Brando. "When the electroides

other in certain liquids so that the current of electricity nesses through them Jaimposition ensues ; that is, certain elements are evolved in obedience to certain laws; the water, for instance, vields overen and hydrogen. In these esses the ultimate and proximate elements appear at the electrodes: not indiscriminately or indifferently out oxygen and solds are developed at the tode, or surface at which the electricity enters the electrolyte, and hydrogen and alkaline bases

at the eathede, or surface at which the electric

urrent leaves the hody under decomposition

of the voltage battery are brought near to each

Now if it is shown that water can be demposed by voltain or other electrical action sufficed a current of electricity passing through or without two poles or electrodes conveyior said current into the electrolvia, then all the fine theories of Farnday, Branda, Sillingan and others, must be set aside. In proof that water can be so decomposed or resolved into the guscous state, I submit the following deonstration :-- Make two half circles, one of nine and the other of pistins; solder them together so as to form a circle, and then inerso it in water sufficiently soldulated to act on the zine, when hydrogen will be rapidly evolved from the plating. Where are the two poles ? Or where is the current of electricity passing through the electrolyte? In the making of hydrogen with zine and acidulated water, we say the exygen poer to the sine and forms Ito exide; when water is decompared by the voltale battery with a platina electrode for the negative, and a copper red for the poditive polts, we say that the exygen goes to the copper and forms its exide; but this little experiment with the ring raises a question as to the truth of these say-sos. The zinc of the ring can only yield or form its rolative quantity of oxide in preportion to the hydrogen liberated, and as the plating does not exidize. what becomes of the atoms of oxygen which, according to the atomic theory, must be liberated at the same time the platina is evolving

Without venturing to construct a the will venture to remark, that it will yet be discovered that electricity combines with differ ent metals so as to produce different results when setling on the same electrolyte, or, 'is other words, water may be wholly transfered od into different sub-elements, by electricity in ombination with different metals. Yes II. M. PAINE

hydrogen?

This ingenious little instrument, contrived by a Mr. Rutter, ot Bristol, England, has atrarted so much attention, that the following count of the apparatus, &c., may not perhaps he uninteresting, at least to those who may not have had time to devote much attention to the study of those subjects. The New Magnetic Indicator is thus composed :-

A wooden stand is fixed to a table: from this rises a perpendicular pole, with a horizontel brass red projecting from its summit; at the extremity of the red there is a delicate mair of forcers which greams a thread of silk, the of sealing-wax. The bit of wax is surrounded by a glass shade, and is suspended over a them to forget the triple movement discover the manner of a compass, with the letters a, h. c. d. e. f. g. h. The operator puts his finger, silk thread to rotate, and of muscular unstea. r finger and thumb, upon the top of the per-, diness and arterial action to impart motion in dicular pole, to which the brass rod is at- an instrument poised with the utmost delicasched, when the pendulum makes a variety cy. definite movements over the lace of the diel plate. These movements are described as modified in an extraordinary manner by the say of the operator, the substances held in bis band, and a variety of other circumstances But we must refer to the inventor himselt for an account of his wonderful machines. Mr. Rutter tells us that " by means of this instru ment, he is not only able to demonstrate the shance of the minutest portion of matter pon the living orgasm, but likewise the polarization of our bodies, and those parts where

the north and south poles are situated." "He is also able to demonstrate most clearly the difference between the male and female currents; and that the latter are generally inverse or antaronistic to those of man." "If person of the female sex merely breathe men the hand of the operator, it immediately anges the current to the female. If a bair of a female is placed on the hand of the operator, or the hand of the last of any number of men in contact with him, the female current is mediately produced. The same phenome non is produced by a pocket-handkerchief worn by a lady.

Drs. Quin and Madden, the famous home ofhic practitioners, on seeing the instrument and a few of Mr. Rutter's experiments, they at once conceived that it offered the means of demonstrating the action of homorpathic doers of remedies. Experiments were made

ter's discovery, as given in the report of the Est lecture on this subject, delivered by Dr. Printing Telegraph, but very different from Quin before the British Homographic Soriety. House's. Dr. Madden has since published a lecture ; but alss for Dr. Quin, the " first on the stage " discovers that his, Quin's, experiments were full of fillacies and blunders. He showed the out of sixteen actions of medicines recorder by Dr. Quin, the actions of twelve differed from those produced by the same medicine or imself. This discrepancy staggered the ho remathic faculty, the bubble burst. Mad den turns State's evidence, and proffers himself as a witness at the bar of public opinion against his two accomplices, Rutter and Quin The sim of the hemsepathic organs, which · few week's ago proclaimed this as a won derful and brilliant discovery, is now to let them all down as gently as possible. It is covered that all the wonderful currents of he New Magnetic Indicator has depended upon the will of the operator. How this exerca are the will is to be distinguished from vestary and responsible fraud, we leave the eader to determine.

It is almost uscless to speculate on the rea nture and origin of Mr. Rutter's proceedings. It seems pretty certain that his instrument and experiments are plagiarisms from some nonsensical writings of Herbert Muyo. However, the incomprehensible extent of the folly or fraud shown in the whole affair, renders it difficult to ascertain the springs and motives of the chief actors. Nothing but a determination to be deceived, or the utmost conceivable facility for self-deception, could have led persons, having the stature and years of adult men, to pin doctrines, which they nonthread holding in suspension a little pendulum fees to hold in reverence, to a silly and babyish toy. Nothing but this could have led mall dial-plate, marked out somewhat arter ed, all too late, by Dr. Madren, to lose slobe of the tendercy of a weight attached to a

tions of important

The Telegraph in Europe. Mr. Faxton (Telegraph proprietor) th witten from Postuce

"Telegraphs in England are mostly built on therallroads, and in some instances a railroad company will build a telegraph line and give the use of it to a company, and as an equivalent, the telegraph lends its aid to exnedite the business of the railroad. The telegraph company between London and Livernool gots £1,000 a year for doing the business of the railroad company, and the railroad people afford them all facilities for repairing the line, even so far as sending an extra engine, without charge, when there is not a regular train going out soon; and every man cmployed on the railroad is under instructions to report immediately to the nearest telegraph office snything he may find to be out of order on the line, in fact, a line of telegraph is almost considered an indispensable part of the equipage of all well-regulated railroads in England. The press of England use the telegraph but little, and pay heavily for what they do get by it. The London Times pays 61.000 a year for a certain amount daily, and in addition, they pay for all extra commu

The tolegraph in France is also a differen thing. It is under the control of government to 800 dilution; each globule produced ex- officers, and all the government business is actly the rame result as that caused by the who are in the pay of the government. There These were the leading claims of Mr. Rut.

Something New. 1874 An Ingeniors Bories, Trans for Burston

The amount of incornity displayed now days by burglars requires a corresponding amount of brain labor on the part of inve tors to guard banks, stores and private houses from the depredations of midnight marauders. Something new in the form of

has been invented by H. E. Walters, of Richfield Springs. To introduce this in-genious invention to the public, a stook company has been formed, in which Senator. Elwood, of Richfield Springs, and A. D. Union Telegraph Company, of this city, are interested. The besignaries of the Com-pany have bose located in the 24ther Block, and they are ever open to the public for the inspection of the invention. has been invented by H. P. Walters of

The share has been students. The share has been students of the force of country of the share of the share of country of the share of t WARR PR WARRA

as alsome moved removable and the control of the co QUILF OPERATOR HOWE'S ATTACEMENT. This patent does not cost over one-oighth as much as former inventions. Mr. Austin-has charge of the office in the second story of the Fatter Block, and will be giad to show the Walter Burglar Alarm to all who call.

THE WALTER Electric Burglar Alarm Co. Walter's Patent Burglar Alarm, ROOMS 13 & 14 PARKER BLOCK,

H. F. WALTER, Posts

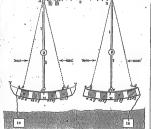
UTICA, N. Y.

NEW CLOCK TELEGRAPH.

by the agency of electricity, receive or send ral distinct wires of communication.

npanying engraving represents a lauge. By the means herein adopted, the sar refegraph recently patential in England in practical telegraphic results are obtained the name of Alfred Vincent Newton, Eq. 11 through the agency of one wire, or main con-clusions to an erroringement of apprantus, where ductor, as in the several kinds of electric teleby two or more persons at distant places can, graphs before known or used, requiring sovelligence by signals through the medium of The sugraving represents two separate sta-

no wire or main conductor at the same time, tions, at A and B, furnished with the necessa-The rapidity or closeness in the order of sucnitely shiret time required for the massage of station, a pendulum, I, is creeted at each, which the electricity in conveying or transmitting has an oscillatory motion communicated to, the signal or electric action, is such that all and maintained in it, by means of wheelpersons employed in these telegraphic opera- work, having suitable maintaining power, ons can be continually not simultaneously such as a spring or weight, as in the ordinary communicating, as though each had the dis- clock. These pradulums must be so regulatingt and senarate use of the main wire for the ted in their motion, as to move in unison with whole time required for his particular mes- each other, that is to may they must both



move from left to right, which is regulated (an electrical machine, or voltage battery, a and determined, as will be afterwards ex- from whence, also, the wire, 9, places it in aised; 2 is the bob or weight of the pendu- milar communication with the pendulum at um; beyond this weight a red, 3, is extend- B, the wire, 9, being the line wire through ed, to give the extent of motion at the extre- which the whole of the signals are to be tra sty required for the facilities of transmitting mitted; 10, 10 are the earth-plates which and receiving singule, which will depend in a complete the circuit, as well understood. Supgreat measure on the number of parties desi-posing A to be the standard pendulum, and the ringfainfultaneous communication. 4, 5, 6, and anc of the pendulum's motion is from Y to Y. 4, 7, 6, describe two path-ways, which have a wire communicates from the earth-plate at systable grooves in the upper surface; these that station, (the point Y), on the left where grooves receive the end of a link, 8, attached there are two parallel metal incea placed near o the pendulum-rod, which is so arranged, together, and at Y. on the right one, is another with respect to the paths or greaves, that such face, to which another wire communiwhen traversing in one direction, it moves in cates from the segmental bar, M M, which is the groove or path 4, 5, 6, while, in the oppo- permanently in connection with the earthection, it moves in the path or groove, plate, and is a conductor of the electric fluid 4, 7, 6. The end of the link is held by a suit- If the pendulums are set in motion, so as to \$\\ \frac{1}{2}\lambda \text{.} \text{. ting electricity. The point of suspension left, at station B, two sparks will be visible, the pendulum is placed in communication by reason of the two faces situate at that point, Leyden jar, charged with electricity by at station A, while at Y, on the right, only one

snark will be visible; but should their mos disagree, then these sparks will be visible at some other point, denoting the inscen-rucy, which must be rectified before any comention can be made. This can readily be affected by means of suitable signals being transmitted specially for that purpose. The enotions of the pendulums, when corrected, will be regulated by the wheel-work by which they are actuated, and which, if desired, may ave a separate pendulum for that purpose.

N N are two series of the accessory short wires before mentioned, for transmitting the several signals, and O O are two similar series of wires for receiving signals. It will be sheerved that the relative positions of these several series are reversed in the different staliens, so that supposing one pendulum to be passing over the transmitting wires, N. at one station, the other would be opposite the reeniving wires of the other station. Although only eight of each of those wires are shown, it is intended that each series should consist of at least twenty-six, to accord with the letters in the alphabet, which they are severally intended to represent as marked. The receiving wires are fixed permanently between the path 4, 7, 6, and the segmental bar M; the upper surfaces of these wires may be each about half-an-inch broad, which faces are level with the noth in which the link, 8, is in contact, and which effects contact with each of these wires successively, as it passes over them. The other series of wires, N N, for transmitting signals, is of corresponding numbers, but simply consists of wires, which are also simported in the her M but do not onite reach the path, 4, 7, 6, but are capable of being slid un to the same level as the faces of the receiving wires. Suitable arrangements are made for keeping the transmitting wires down, unless elevated for the purpose of transmission. by the pressure of the finger, or suitable aparatus in connection therewith, acted on his the energies

One oscillation of the pendulum, that is, to and fro, is supposed to occupy the time alsolutely necessary for a nerson to transmit or note a signal : a succession of signals is therefore produced at so many repeated and successive oscillations. Thus supposing a person to be engaged in transmitting signals from sintion A to station B, he will engress the use of one series of transmitting wires, N; by the proper use of the wires in succession, he may snell the several words which he desires to nicate. By elevating the particular letter of the series, say a, the wire so denominated will effect contact with the link 8 ... it passes, which will complete the circuit at this station; and simultaneously with the contact of the link, 8, at station A, the link, 8, at station B. will be in a precisely similar situation with respect to the receiving wire dance minuted o, at that station, which is indicated by a spark and noted down as the signal. The needulum having completed, its oscillation to the direction it is then moving, then vibrates in the opposite direction, but without effect. as the link, 8, returns by the other part. On reversing its motion again, the nerson transmitting the signals, having relieved the wire erresponding to letter a, raises another wire. hav corresponding to the letter c, which is in like manner indicated by a spark on the passing of the pendulum link, 8, pest the points of

one at each double oscillation of m, so as to compose any comr may be desired to make. In like three other persons may be employed transmitting and receiving intelligence a station, that is to say, eight persons in H; two at each station making use of the mitting wires, and two at each station relving intelligence. By employing a greater her of sets of the transmitting and receiving wires, a greater number of persons may be nultaneously engaged in transmitting and sceiving intelligence through one and the the extent of the arc of vibration restricting vires should be confined to the smalles sible stace consistent to insure the requisite unty of action. The action of this teles although singular, must of course be ower than the Morse or Bain telegraphs.

(For the Scientific American.) Electric Batteries. (Constituted from years 2021

Mr. Smee, admiring the Kemp arranger with his usual sagacity, proposed that, although it might be inferior to the plate form for ge-neral nurnoses, still it might be employed for using up the residues of the plates; this would also recover the mercury which had been used in amalgamating the plates. On this he con-tructed his Odds-and-ends Battery. He discarded the perforated plate, and substituted one of his platinized plates, which was necessarity placed vertically to permit the case to

Despairing of making a profitable use of the plate batteries, Mr. Green determined to give Mr. Smee's Kemn battery a thorongh trial. Several of these batteries were constructed. but they proved of little efficacy, notwithstanding the great advantages of platinizing the perative plate : the action was both feeble and fugitive

The small action we thought might be ferable to the great average distance of the vertical nagetive plate from the horizontal positive plate. A plate was then formed of a sultitude of small plates, which brought the average distance within half an inch of the notitive: but after all it was evident that there was some grand violation of the princistes of electro-chemistry.

It now occurred to me that the deficient ac tion was owing to the autohate of ging formed on the amaleum remaining there, by its surrerior gravity, and after saturating the water is its immediate vicinity, interposing a film of dry salt between the zine and the excitant: Mr. Kemp's apparatus; this, as its name imwe now placed the amplean near the top of norts, is used for measuring the electric acthe vat: this worked much better, being con stant though feeble. It was observed in time, by using this last form, that the sulphate of zine was removed only from the edges of the amalgam, but in the centre it lay in a bed of crystals. We saw that however large the esitive plate might be, it was virtually small, or the edges alone were active.

We now saw a necessity for a circulation or continual pritation of the sold-water. This was produced in the vertical plate battery by the ascent of the hydrogen and descent of the sulplinte; but the means of effecting this in the horizontal arrangement were not easily

After making hundreds of experiments, and easting as many days and dollars, I produced the form of the moreury support represented n figures 1 and 3. I was delighted to find that had succeeded in producing a constant washing of the positive plate. From the engraving, it is evident that the sulphote of vine flowing down over the sides of the mercury apport, and being prevented from flowing wn the hole, O, by the height of the edge or collar around it, will destroy the couldrium between the sides and centre of the iquid, and produce a circulation in the direcion represented by the arrows. Fresh acid s constantly carried to the amalgam, while s the cap, will be in metallic connection with the plate, p, and the battery will be thrown the exhausted fluid, moving down the sides of in action by interposing a conductor between at, occupies the bettom of the vat, where

the salt at length crystallizes. I have had the salt to form to the death of four inches in the bottom of one of the batteries. As th zinc salt is removed to the better without commingling to any great extent with the monniumed said the exhaustion is one of quantity instead of quality; unlike the case with all other batteries, here we have the size of plates and strength of the excitant remain ing constant, giving elements of constancy, almost equal to those in the constant battery of

Prof. Daniell. The muslin disphram will rever be intered by the acid, provided it is not not in while the mixture is hot, and is not left in the air so as to get partly dried-it cost me years to lanen this

I have called this apparatus the "Reservoir Battery," because it is a perfect instrument for converting zinc said and water into calvanic newer. From the experience of many years, spent in making and using galvanic batteries, I can say that this is the best form for convenience and economy, and also for constancy and power: with a rauxe plate one

nuisance of amalgamating and soldering, or scale for gold; or if the scale is for silver, then screwing on zincs. The liberated hydrogen little the vat so as to be made scaled by touchin

the liquid in the vat

My voltameter battery is another form

tion which it effects by collecting the gas evolved from the perforated plate. As represented in figure 4, its construction is evident at a glance. A is a glass jar fitted with a heavy leaden cap, C. from which depends a tubulated receiver, B. Near the bottom of B is a perforated silver plate, p, suspended by a silver wire, r. which is fastened to the cap, C; the plate, p, is concave below, with three large holes near the wire, to let the gas through, solide is liberated on the under side : this plate should be well platinized. In the bottom of the jar, A, is a ring of mercury, S, containing bits of zinc. No portion of the zinc or smalgam should be vertically under the receiver, B, for all the gas collected in the receiver, B, should be evolved from the plate, p; if any bubbles should rise from the amalgam they should pass up between A and B; the form of the bottom of glass jars will bring the amelgam in the right place, if too much mercury is not used. From the binding cup, a, on the right of the cap, c, passes a wire to the smalgam; this wire must be well defended by gum from the acid, (gutta percha covered wire answers admirably) and the binding cup must be insulated from the cap, C; the binding cup on the left of the cap being in contact with

the hinding cups, a a.

led, gas will be evolved from the plate, p, and being collected by the receiver, B, and measured by the scale, g, it becomes an unerring index to the amount of chemical action per formed in the circuit. As all the chemical nctions in a voltale circuit are in proportion to the atomic numbers of the substances acted or we need measure but one substance produced by the electric action to ascertain the amount of any other. The stomic weight of gold is 200, of silver 104, of copper 324, of hydroren

I; therefore, if one grain of hydrogen has been collected while gilding an article, it is certain that 200 grains of gold have been deposited; or, if in silvering them, 104 grains of silver. Forty-seven cubic inches of hydrogen weighs one grain—this is the basis for the formation of the scale. To make the scale on the receiver, a broad stripe is made with asphaltum varnish, down the side of the glass; when this is dry, two vertical lines must be drawn through the varnish, and a horizontal line for a zero mark. From the calculated cubical contents of the receiver, the depth which would be occupied by 47 cubic inches must be set off from the zero mark. foot square, I have deposited one pound of this space should then be divided into 200 Sort square, I have deposited one pound of the square and then be divided into 250 copper per twenty-four hours, on an electrode spaces, by drawing lines through the varnish, 9 by 12 inches. This lattery is free from the

Your raper No 26 contained as subsem an article by Prof. Page, in the March imber of Silliman's Journal, describing two rms of voltaic batteries invented by him in the year 1838; and also stating that I had b outed the same forms in some of my execsents, and that I thought very highly of the provement. In the succeeding number of our paper I denied the identity of the annadescribed by Prof. Page, with that which I had exhibited to him to use and Inimed the priority of introduction for James een, of your city, and myself. I had never published a fall description of the apparatus I to a sufficient number of the readers of a scientific paper, to warrant it to eccury that space which we always expect to contain useful matter: and also because I greatly dislike to be continually blowing my trumpst into the care of people who care nothing for my music. But as I have alaimed the origination of the apparatus I use, I feel a necessity to offer a full description of it; and as the voltaic battery has, within a few years, been introdu-

coltameter betteries These batteries contain the improvement of Smes and Kemp, having a platinized negative plate, a mercurial flood containing bits of zinc, and are excited by dilute sulphuric neid plane. I have wish it distinctly understood that I do not claim to have added Mr. Smer's mprovements on to Mr. Kemp's, for that was done by Mr. Smee himself, in his "Odds, and, ands Battary II but I have contribud thinsular which Mr. Kemp's mercurial flood battery is made of practical use to the manufacture This was simulat by Mr. Smootin his Odds and-ends Battery, but it is well known to electro-metallurgists that the form proposed by him is of little use.

ced in many useful arts, with its application

extending daily, I think I may now offer mn-

ny of your readers useful and interesting in-

formation in a description of my reservoir and



Fig. 1 represents a vertical section of the their vats, which is by placing one hox within meeting wires must be well coated with guranother, so as to leave overy way an interval where the metal may be exposed to the acof half an inch between them, and pouring tion of the acid.
melted pitch in the space between the boxes. The utility of mere the top of the acid water, and for guiding cumstances which led to their introduction, the salphate of zinc to the bettom of the val. Shortly after the appearance of the electron the sulphate of sinc to the extrem of the var-ture top is jet in the sides about a quarter of an it (type art, I was engaged with Mr. James Green lach below the edge; in the centre of the top in embravoring to make a profitable applicais a hole, O, having a raised edge a quarter of tion of it to manufacturing some parts of man inch higher than the edges of the box; this themsatical instruments. Success did not atbox is represented more fully in fig. 3, where tend our labors, for the use of the battery as a box is supersented more fully in fig. 2, where it tent our labors, for the use of the battery as a it is represented with small logs, not seen in it lood developed its imperfections, and proved fig. 1; the legs should not be longer than two extremely uncarriant, troubletone, and experiently, and the whole beight of the box such sive. The sunsignmented zince plate used in

ast be comented in its place, with sheller ste, and every nort of the frame well warnished by repeated coating with the sheline paste; atter drying, the tacks may be taken -



Fig. 2 shows the frame, B B, with the m lin bottom, and also with small feet, which stand on the mercury support when the apparatus is in use. The muslin is designed to prevent any amalgamated particles from coming in contact with the negative plate, and also to serve as a support to the plate, which it admits of being placed very close to the mercorv and defends it from touching. A sheet brass gauxe, coated with copper by the electrotype process until the meshes are peoply closed, and then heavily electro-plated, and afterwards platinized, will answer well for the negativo plate, but a sheet of silver foil, neg forated with small holes as close as they can come together, will answer much better; in making the perforations, the metal must not be removed, but driven up to a bur. burs should be on the same side, and the bur red side used processes.



The battery is charged by potting the be-C C, in place, then pouring on the emirkely or and placing some pierce of zine in it; the val may then be filled with a mixture of 3 part of water and one part of sulphuric acid: the mixture may be made in the vat. The muslin disphrom must not be put in until the mixture is cold.

Contact is made with the positive part the buttery by means of a stoot copper wire or ribbon, keeling from the mercury up beween the sides of the vat, and the frame, B. when it bends over and is made fast to the vat, and terminates in a binding cup. Contact is made with the negative plate by means of a stout wire tipped with silver, or terminates received lattery; \(\lambda\) is a water-tight box, with a silver button, the silver merely resting made as the electrotypists usually construct; on the game plate. Every mark of the conon the ganze plate. Every part of the con

The utility of the peculiar arrangements de tel above the eater box, the dark space betest above and coarer than a wars. The second traven the boxes representing the pitch. C C is a box an inch less in the sides than the interior of the vert; it has no bottom, being a show the advantages derived from these connere platform for sepporting the mercury strivances, it will be necessary to view the cir-

inches, and the whole height of the lot men halve. The menipumsted size plate until an as to being the aming meithers niched the ling jiuwale hatteries are emetably decreasing in the of the self vaters, B B is frames and quality by the settles of the self, this string a piece of small lingly stricted over all gives the hattery which perfectly the self of the self bottom (the mustan is agree vectors are secured compound not acted on by the celd. At long in its place by small tacks: after it is dry it the plate decreases in size, leaving a fragmen of the plate in which is all the mercury, but in a useless form. As a general thing the mercury and zinc are here lost. Two success

ave diminutions in the quality and size of the battery and the loss from residues is almo equal to the zinc consumed in maintaining the cupus to the zinc consumed in maintaining the buttery action. In place of a zinc plate, Mr. Kemp substituted an amalesm of zinc. His battery consisted of a weeden box or trough containing the neid water; in the bottom of the har was placed a fixed of mercury, with

me fragments of zinc, and above the mind 2400, and parallel with it was placed a conner date perforated with many holes to permit the gas to escape. In this plan there evidently cannot be any diminution of battery nower from decrease in the size of the resitive plate neither can there be any residues of zine or loss of mercury. All electricians have admired the beauty and simplicity of Mr. Kemp's armagements, yet in practice it has been found ineffective, and has been wholly surerseded by the amalgamated plate battery, subsequen ly introduced by Mr. Sturgeon. GRORGE MATHIOTAL

ELECTRO-MAGNETISM AS A MOTIVE POWER...Fig. I

As noticed by its last week, we proceed note repel one another. Prof. Page found that the whole length. When one electro magnet ratisfaction, both on account of their nature power, that of Davidson propelled the loce- of metal; the white are the ivery.

properties of electro magnets. An electro magnet consists, in an insulated wire collect round a bar of soft iron, with its ends open. and connected with a galvanic battery. When the circuit of the battery—the wird that connocts the two last plates of it together, is closed, the end of the soft from bar, which beforo was powerless, acquires a mysterious power, and will attract a mass of iron with great force to it. This will not produce a motive power, it is static force, but when the circuit of wire is broken, the virtue of the magnet censes, and the attracted metal falls.

The axis we will suppose to be one of the cylinders, alternately break and close the cir-lecomotives, with the wheels removed, and The first engine for producing motive powby electro-magnetism, was invented by the magnets, M M, we will suppose to be to give it a continuous retary metion. David-Fee. Heavy, now of the Smithsonian Institute, family fixed on the track of the engine. We son used 39 pairs of 13 inch plates, the negative In 1833 with a battery contained in one will suppose the batteries to be fixed at each being iron, the positive one smalgamated size. In 1822 with a battery combined in one you'll expose the batteries to as forced at each long stem, the positive cert among product of the freed, and each of the freed that the state of the in Vol. 20, Silliman's Journal. The electro action much better. On the axle is a cylinder Frof. Jacobi got out of 20 square feet of imagned has two poles, the positive and negar of two man, of first and the two similar poles of two mag. of fron at equal distances part, and running the tabletry surface, one horse poles.

to give the subptance of Dr. Tages, Lecture all the old electro magnetic ageins were only a wood sength. When one electro magnet give the subptance of Dr. Tages, Lecture all the old electro magnetic angines were con. In charged it will attract one mass of metal action in the principles of attraction and re. it and thus make the sate howe on its action of the state to the contract of the state of the sate ways on the sate ways of the sate ways o of the secretic suggestion common, and not particle on the processing of the secretic history of the repulsations of policies for produce notion. It is known that parify round, then this magnet has its circuit this power. We here present Prof. Page, as Davemort in our own country, Jacobi in Burs. However, and the opposite magnet charge. ans sower, we note protect free longs, as averagors in our own country, second in this jurgest, that the opposite magnet emages, he appeared in the Tabernacle explaining his sin, and Davidson in Scotland made, some years which attracts the opposite mass of iron on the ne appearent in use a government e expansing no ; soo, and anatomism in occasion, notice some operate automos and opposite make or note on more congine, and going over his experiments. His app, electro magnetic engines of considerable cylinder, and thus rotary motion is given to assistant is A. Davis, in electric engineer, and sire; Jacobi propelled a best on the Neva, in the axie, and the wheels are revolved. datheses of A. Levin, an inequire daugment, and introj. Second propensed a costs on the Areva, in Lunexie, data the wherea and re-volved, the boother of D. Dayls, of Boston, so well 1839; Davemport and Rassom Cook had quite Near cach end of the axie are two small cy-

Note come to its lowers, so were 1,800; lowers post and namento soon that quate having for the come of Off on security more teen entries in 190m, proxy, man, normal recommends, in 1902 | sum near two surgety, many of the Talermetea and Society Liberay, and they on a railread near the city of Glaspow, Soci. bid; the outer have, or of, one parity overed with the control of the most intellectual land. and scientific quality. They have given great The engine of Jacobi was about two horre-

and the unassuming manner of the lecturer.

When he (Prof. Plege) took up the subject miles per hour. It was equivalent to a little connected with Z or pole of one lattery, the When se [1701, 12820] took up the subject names per nous.

of applying electro integralism as a motive over one horse power, but Davidson used the other end of the wire, a resist on c, the metal power, he found that all which had been done, attractive power alone, of the electro magnet, in of one small cylinder. The wire, a, rests on c, the metal was based upon the attractive and repulsive last is represented in fig. 2. the other pole, K, rests on the other metal part, o and thus the electric circuit is formed. The arrows point out the direction of the cur-

rent, which, when the circuit is formed, renders the magnet, M, powerfully attractive, but when the circuit is broken, it has no attractive power. On the opposite small cylinder, the wire, e, rests on a non-conductor (the ivery) therefore the electricity cannot pass from d to e, the circuit therefore is broken, and while M is a magnet M is non-magnetic, but as the cylinder revolves, it will be noticed the ivery and the metal pieces on the small

himmer

eor one Eccentific American. tro-Magnetism as a Motive Power Much has been said in dispersement this nower as a prime mover; it has been urred that it is more expensive than steam rower. I know of no instance where it has been attempted to prove that it could be made a nouses as chang as steam; I would therefore throw out the following observations to the future experimenter in this branch of the arts: -At present the metal used to produce gal vanism is zine, which, being dissolved by sulturic acid, produces sulphate of zing, an artiela of little commercial value. But if we could ese same other metal, the residue, or salt, of which would be of some intrinsic value, we night, perhaps, reduce the cost of electro-

nagnetism to a mere cypher.

Farulay has demonstrated that the amor of calvanism which any buttery produces is in exact proportion to the amount of metal consumed. Prof. Harn is of the eminion that we cannot produce galvanism of any practical utility without the consumption of some motal chemical decomposition is absolutely necessary to produce splygnism, and the new er of that galvanism depends on the quant and the rapidity with which that metal is cor sumed. Liebler seems to descrip of electro mognetism over taking a preminent position as a prime mover.

For certain purposes, I admit, it will neve he used to advantage as, for example, in Mount shins or milroad cars, for the very reason that Liebig pdyances, namely, that one pound of erol produces as much mechanical power as thirty-two nounds of zinc. It is not the expense, but the bulk and the weight of the meand four-recently times more from to ston away enough zine to produce as much power na coal, besides being thirty-two times heavier But for stationary engines, I believe electro marnetism will, some day not far distant, take place of steam. It so happens that hitherto the arrangement of the bottery has been such that the salt formed by its action is of no value. In the construction of a ralvani hattery, two things ought to be kent in viewvir acasemy and nower: the former has been sadly disregarded, all the ingenuity of the inventor has been bestowed upon the latter.

I have constructed a hattery in a high silver takes the place of the zinc, and intric the place of sulphuric acid, the salt formed by this battery-nitrate of silver, is of much use in the nete and is worth as much as the elluse and the seid used in its production, leaving the galvanism produced a net profit.

Mr. Joule has proved that 46 pounds of sing consumed in a Groves' battery, in 21 hours, are capable of producing one liorse power; 41 pounds of zine, dissolved in sulphuric neid, vield 55 rounds of sulphure of zine. From the researches of Faraday, it appears that the quantity of the voltaic fluid given out during the solution of various metals, is in the ratio of their stomic weight; accordingly it will require 30'0 pounds of silver to produce the same effect. Now 30:0 pounds of silver will vield 46'60 nounds of nitrafe, which is worth \$1,12 per ounce, making the salt produced, in a one horse-nower engine per day, worth \$427. Coin silver is worth \$1,16 per conce, accordingly 300 pounds of silver are worth 8430. leaving a balance of \$107,00; my batned 3 dwts. of silver and one ounco of acid in 24 hours; nitric soid is worth \$1,12 per nound, accordingly \$21.69 worth of soid ill be required ber day to work the engine leaving \$172,71 to pay for collecting and casting the nitrate into sticks ready too market

Using mercury and muriatic acid instead of silver and nitric soid, corrosive sublimate was formed, and I have no doubt that many other grangements can be made in the battery, nonduring a number of salts, useful as maint, me

dicine, and for dweine.

..... Dr. Boyton nat'de marmed that muching motion is produced by electro-magnetism, and brain is the galvanic battery; the nerves the conductors, and the muscles the electro-magnets. Now, if we for a moment contemplate the animal system, we are asion ished with the immense power which this small battery exercises, for it is not merely the work which an animal can do that measures its power, but by far the greatest part

respiration. 'Hoffman and Haller say that the heart alone pumps out about seven tons of

blood ner day. In the construction of electro-margins for little regard has been bad to nature; the muscle of the animal consists of many hundred ontaining many thousand minute globules, only visible by the aid of the microscope, these vame circuit being closed by the will, are rennathematical figure, and as the power of elec- one charging of the jar. tro-magnets is rapidly diminished by being creased, but suggestism is decreased in a nuch repulsion, similarly to frictional electricity. more rapid degree. According to R. Hunt, a marnet, in contact with an armature, lifted rent escaping from points, and reacting on the air; a lighted 20 pounds; when separated only one-fifth of

on inch, it was only capable of lifting 40 lbs. It is also necessary that the electro-magnets se made very small, making a powerful magnet by the combination of numerous small ones tend of very large ones. J. F. Maschen,

Philadelphia 1851

ELECTRICITY AT THE STEVENS INSTITUTE -NOVEL RESEARCHES BY PROFESSOR MORTON CONCERNING THE INDUCED GURRENT. THE INDUCED CURRENT. 1915 recently delivered by Professor Morton, at the Stoyens Institate of Technology, Hobokes, N. J., before a large and intelligent audience.

The lecturer introduced his subject with a few simple, but

suggestive, experiments, showing the attraction and repul, ston of pith balls and gold leaf very plainly, by throwing their magnified image on the screen. He mentioned that alof its power is consumed in re-production and though place was the substance generally used as an insula tor, it was not by any means perfect for the purpose, and or, it was not by any means period for the purpose, and loss as a reservoir of electricity, owing to the poor insulating

The state of the s

power of the glass. Vacuum tubes were nassed among the audience, each tube baying scaled within it a smaller tube, with bulbs blown along each inch of its length; in the space between the smooth outside and the bulbed inside tube, was placed an small fibres; these fibres are hollow tubes, cance of mercury; on suddenly inverting the instrument. the mercury, in its descent, would strike against the bulbs of the inner tube, producing friction, and consequently eleccomy vinice by the air of the interestors, more or the inner tabe, producing richon, and comoquency over-globules are composed of about 80 per cent. of tricity, of which the effect could be seen as a violet or purple iron, and are enginted by a nerve, and the gal-

The subject of electrical induction was next introduced, dered magnetic and attract each other, there- with a simple instrument called the electrophorus, and a dered magnetic and attract each other, there- with a sample instrument called the electrophorus, and a the circuit being broken, the muscle is again induction colls. A Ginssler tube was caused to revolve renrestored to its former position, thereby produ- idly by means of a small magnetic engine. When the incing animal motion. It is singular that nature |ducod current was transmitted through the revolving tube. should construct her electro-mornets globular it produced the effect of a handsome piece of fireworks. A instead of the shape of the horse-shor, as man wife, with strips of paper fastened at one end, we connected has deen, the question crises, which of the justic the inner centing of a Leydon far. On charging the fast and open, the question arries, which of the jar-two is the proper form? I am inclined to with the long sparks of induced electricity from the inducthink that the former is the best; the matter fion coil, the strips of paper would be repelled and stand out contained in two clobes can be brought into from each other, but on discharaing the iar they would incloser attractive proximity, than the same stantly drop. A chime of bells was rung on the same princoper attractive proximity, than the same states and would continue to ring for twenty minutes with

Professor Morton mentioned that he believed he was the drawn assudes; that is to say, gravity is diminished as the source of the distance is in. the Rhumkorff coli was capable of producing attraction and An electrical orrery was set in motion by the induced our

> andle, hold near one of the points, was almost blown out. The speaker closed the lecture with some brilliant expericonts with the large ceil of the Institute. Wood was torn up, and gunpowder was only scattered with one electric flash, which lasted the six billionth of a second, but ignited by another of longer duration, about the six or eight hundredth of a second. The last experiment, that of canning the induced electricity to penetrate blacks of glass, was received with well deserved applause; the assistants brought in two heavy columns of glass, each having a metal rod running through its middle; thick varnish was poured on the top face of one column, and the block of glass to be penetrated placed on the varnish. More varnish was then poured on the block and the other column placed on top. The principle was simply to bring two very well insulated electrodes together, with the block of glass between them; the object of the varnish was to render the path through the glass the casiest course for the electricity. The terminal wires of the secondary coil were connected with the reds in the columns of glass. It was very interesting to observe the effect of the strange force was very interessing to occurre the electricity would penetrate straggling through the glass; the electricity would penetrate perhaps an eighth of an inch, and then, as if the resistance were too great, it would dart back and run around the outside of the block, turning the corners and scattering the layers of varnish; then sgain the current would make a new attack, penetrate deeper and deeper, until at lost the bright streams of light passing entirely through the glass and electrical success.

The Professor exhibited a block of glass three inches thick (penetrated in this manner), by throwing the light through it and on the screen; two plainly marked cleavage lines showed the electric path through three inches of solid

Electrical Currents from Albumenoid Substances. M. Bocquerel has shown that, when two heterogeneous liquids are separated by an organic membrane or by a capit. lary space, they give an electric current capable of producing chemical and mechanical effects, reduction of metals, and donble decomposition, etc. M. Onimus finds that the interposition of a layer of albumenoid matter (white of egg, albumen of blood) has the same electro-chemical results. Thus with the lutions of sulphate of copper and of exalate of potasis, separated in a tube by albumeroid substance, beautiful blue crystals of exalate of copper and potsals are obtained. The enomens, he points out, may throw light on the formation of phosphate of lime in animals.

o-Magnetlan as a Motive Power. [Continued from Birst Page.] my have believed, and now believe, principle of attraction and repulsion is

or than the attraction alone. Davenport, Vermont, used a walking beam engine with metal piators moving in hollow magnetic coils, each coil forming a whole hollow cylinder. Prof. Pago's engine differs from all these in principle, in arrangement and action. He and that the magnet required time to receive the magnetism of the coll, or in the words of Snew Harris "to create a magnetic atmosphere," and it also required time when the ouit was broken, for the magnet to part with its induced magnetism; the induced magnetism or secondary current of the magnet acted also in the very opposite direction to

the one required To remedy this he came to the conclusion that it was necessary to make the current of the magnet (the secondary current) act always in the same direction with the object to moved, at the same time it was necessary that the magnet should always be magnetic. This was for the purpose of gaining in the dement of time, as the magnet could not at sace be deprived of its counter-force. He therefore adopted the principle of Addres electro-stagnetic coils, and a number of them as represented in fig. 2. The principle by which this corries is operated is electro-magnetic at- B, the springs, A A, the shifes, c c, and the wires traction by the intermittent charging of a series of bollow magnets acting continuously on a piaton magnet moving inside of them, in the direct line of motion, whether that line of alternately from coil to coil, cutting off the motion be horizontal, vertical, or circular current behind and throwing it on ahead, as [rotary]. In figure 1, a rotary cylinder is represented on the stage, and as it was the first, it seems still to be the favorite with it, it reverses the smaller of the engine, Mr. Page, but we have chosen this horizontal of the engine, Mr. section of it for explanation, as we believe it is the best, and has mechanical advantages superior to the other, and also a longitudinal vertical section, fig. 4, of the circuit changer, which performs the same office for this engithat a slide valve does for a steam engine.

The dark space are a series of hollow mag-

nets formed of square copper wire wrapped round a mandril. There are about 1,500 yards of wire in each coil. These coils are covered with a non-conducting substance. When the mandril is withdrawn, and these coils fixed is made, the changer, i, at once diverts the on a frame, they form a cylinder made up of current from one half of the colls to the other. on a mann, may make youngs mouse up on the state of the settlems, (coils). They are all connected to acking upon the opposite said of A, by the three gether metallically, loss are so arranged and coils near the middle being first charged, and enter metallicity, one are so enteringed and so on one after the other as the piston moves amorted with the cut-off or slide, that but so on one after the other as the piston moves three magnets (hollow coils) are changed at along. A stroke of any length can thus be ence, and one coil is being continually cut off given to the engine, a thing never done before. behind, and the current being continually The common electro-magnet, say one that will thrown on to the coil before in the direction attract 1,000 lbs, at one inch distant will only in which the piston is moving. This is the attract 32 lbs. if placed at two inches distants peculiar feature of this engine, it is a continual it loses power, to use a familiar phrase, acelectro-magnetic draught in the secondary current direction of the iron magnet; this magnet is a round mass of iron, a, placed in the very centre of the coils. When the coils are charged, this bar of iron moves in Their inside like Mahomet's fabled coffin tourhing tolhing. In fig. 1 is number of vertical coils, and in their inside is a buge mass of iron of 520 lbs. weight; when these coils are charged by being connected to the battery, the huge har mysteriously rises in the very centre of the coils, when the battery circuit is broken, the bar falls. A number of persons were placed on the platform on top of this bur, and hav were elevated by that mysterious agency which cleaves the oak tree like fragments and no less powerful here, because unseen, ces are the hollow-coils, they are secured ho rizontally on a suitable frame : a is the "riston or bar of iron, which is free to move in the inside of the coils, and which is attracted with great force, backwards and forwards in the aside of the hollow coils; I is a piston rod se-

ured to a double crank, which gives moti

to a shaft, on which is a fly-wheel. K. This shaft by having pulleys on it, can, by bands, give motion to all kinds of machinery. In fig. 1 a circular saw is displayed, this was made to saw timber in the presence of the audience. Attached to one side of the piston red is an arm, so, which works the cent off. The battery is not shown, but A is the positive wire, and B is the negative wire coming from the opposite ends of the battery. Thumb

ecretica are represented to screw the battery wire to the rods of copper, one running alo one side the whole length of the coils, and the other close to the coils on a narrow platform on the engine-frame; d d are small blocks connected with the hollow coils by the wires, g g, as represented, and form the connecting points of the circuit, and perform a similar office to the ports of a steam engine; f is the slide moved by the arm, st. It has two thin strips of copper on it, separated a short distance at the middle part. Each strip has two metal spring plates, se, on it, always in

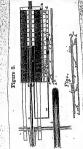
contact with some of the copper blocks, d d, as shown in figure 4. Only two of these plates, e.c. are in connection with the batters at once, the ones for example at the left hand for the motion of a to the left, and the other set for its motion to the right. The wires. A g g, form the electric circuit rendering the coils magnetic, therefore, as the slides move backwards and forwards, the circuit is formed spoken of before; i is the stroke changer, that

throwing the current from one half of the coils to the other half. This is done by two dogs or projections, j j, fixed on the side of the frame. The changer, i, is fixed on a centrepin, and when it strikes one cam, j, it brings of a steam engine, and moved in a similar way one set of slides, e e, to form the circuit, and by an etcentric and eccentric-rod. The action when it strikes the other cam, j, the changer, of the engine may be reversed by the use of a f turns on its pin and comes in contact with the strip of copper which is attached to the to regulate the proper supply of the electric other slides, e e; there is therefore always three of the coils charged at once, as will be observed in fig. 4, but whenever a full stroke

ording to the square of the distance; in this engine, the piston always moves in the magnetic equator, which is the centre of the hollow

The accompanying engravings represent a very ingenious Electre-Magnetic Engine, invented by Soren Hjorth, of London, and patented April 1819. The inventor proposed to apply it to propel ships and rail cars.

Fig. 5 represents the elevation of an engine the same engine. A A is a horse-shee-formed hollow magnet, conical on the inside coiled with copper or other wires, and suspended in such a way that it oscillates on the centre, B, with suitable bearings and plummer blocks, as shown in the figure. In the interior of this agnet is fixed a number of conical rods of different lengths. B'B is mother horse-shorformed magnet, conical on the outside, with apertures corresponding to the conical rods in the magnet, A A, and likewise coiled with This magnet moves on the guide-rods D D, which are connected together at the top



by means of the cross-head, E. and fastened at the kettern of the marnet A. A. The mide rods may also be fixed to the magnet, C C, and guided by rollers. A connecting rod is attached to the magnet, C C, in the centre, driving a fiv-wheel shatt by cranks in the sunl way. R is the commutator to chance the electric current as required, which is similar in its mode of working to the slide valve applemental eccentric. The governor serves current to the commutator, O, as afterwards

The current ofter being regulated by the rovernor, is introduced through the commutator into the helix of wires coiled round the magnet, A. A. and thence through the conduct-

ing wires to the helix or coil of wires over ounding the magnets, C C, and thence through the conducting wires to the lattery, or by the reverse course, as may be found conveni out. As soon as the electric fluid from the batteries passes round the magnets, they exerrise their power by a mutual attraction, not only testhe ordinary way, but in consequence of the magnets being so shaped that the inside part of the outer magnet, as well as the outside part of the inner magnet, forms angles with the direction of motion of the moving or working magnet; and, at the same time, rods of different lengths presenting themselves at the poles of the respective magnets, the at-tractive power is sustained over the whole stroke by successive points and successive y it to proper any and an engine parks of the surfaces being brought to act upon add on this principle; and fig. 6 a section of one another during the whole stroke. When the stroke in this manner has been made his

> tive by the current passing round them in the same manner as before described. In order to prevent the current from being broken, and also to check the momentum of the magnets, the slide in the commutator, F, is made so long that it does not leave the conducting surface which communicates with one set of magnets, until it has reached the other, commicating with the other set of magnets. By the arrangements above described, a reriproceeting motion is obtained similar to that of the common oscillating steam engines, and it will be obvious that a motion may be obtained similar to that obtained by any of the

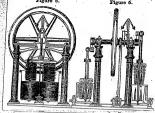
one set of magnets, the current is changed,

and the other set of magnets are made off

various forms of ateam engines by suitable adaptations of beams, reds, tranks, &c. Thus it may be carried out as a single or a double it may be carried out as a single or a unusie acting engine, as an ordinary beam engine, or as a direct action engine, according as it may be required for stationary, locomotive, or marine purposes; and in all cases its form may be varied according to the circumstances of

It will be observed that the difference heween Horth's-the most ingenious magnetic engine ever produced in Europe, and that of Prof. Page, is very great. The piston, a, of Page's engine is a movable marnetized her and in every sense of the word is like the niston of a steam engine, only there is no pack-ing or cylinder covers required. The size of battery used was 40 ten inch plates, " Grove's battery." The power had been tested by a a friction brake-the lever shown in fig. 1and gave 8 horse power. This brake is a lever fastened to the perinbery of the fly-wheel. k, and is eleven feet long, the fly-wheel hav-13 feet circumferential surface. We did not see it tested to this power. We amount many others, believe that friction brokes are not always true tests of horse power, we profer the elevating of a weight according to the formula of Watt, for we have seen the friction brakes give questisfactory results. The new or of this engine, to the size of the battery, is very great, and it is assorted that by increas. ing the battery, the power is increased in an equal, if not greater ratio.

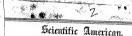
This is quite different from other magnetic enrines, which are stated to have always produced results greatly disproportionate with large batteries. The free length of stroke which can be given to this engine, is a new and important feature, and the breaking and closing of the circuit at a distance from the magnetic pole, or bar, e, is pnother important feature, for very feeble sparks and noise are thereby produced by the engine. In figure 1, Prof. Page and Mr. Davis are represented as breaking the circuit of the buttery, and producing a flame, but the flash, should be very feeble in comparison with the one renrested. When the wires are placed on the end of the rounded bar, near which Mr. Davis is resting his left arm, and there drawn apart, it produces a hune flame, and a report like a pistol. There is a continuous series of flashes fleeting along, as the springs, c e, pass from one plate, of to the other. It must not be forgotten that the changer, i, is continually in contact with the negative pole on the inside, and is only shifted metallically on the positive side, to throw the current from one end of the piston to the other, to give the reverse stroke. No hot wells nor pumps are employed, and the question rises, will this engine ever supersede the steam engine. This cogine, unlike others, we now say, is practical-positive avidence having been adduced to prove this; the question is one of economy between this and the steam engine, which is also a very simple machine. We have not the means of judging of the comparative expense of this engine and the steam engine, nor of comparing the practical working of the two, but it is well known what our opinion is with respect to the steam engine-it is as yet the first of motors, by a long way, and will yet be greatly improved. But a great stride in advance has been made by Prof. Page; he has produced the most perfect Electro Magnetic Engine over built, and future improvements, if they can be made (and who doubts it), may yet being it to be the compact motor, so desirable for nerial navigation, and without which no such art can be rendered neacticable, and too Scars of explosions.



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is a compound, consisting essentially of chio- stantly to bear in mind, that if he wishes to in a compount, occasion, execution; or they parameter a minu, that it is written to him and hydrogen; let a piece of silver, with provent an article from being dissolved, but a platinum who attached, be immersed in one must attach it to that part of the battery side of the vessel, and a piece of pure zine, which is being dissolved. And if he wishes to side of the vestel, and a pieco of pure sine, which is being dissolved. And if he wishtes to with a platinum wine statech, in the other dissolves a nearli he must attach it to that me-side, taking ease that the two metals do not in the state, clea the said will not make the state of the state of the state of the states the zino, for it may remain in it for a silver was eliminating the hydrogen from the and negative poles.

particular pation; the wire as well as in the matials and and if for let us groundly the wires in a west of frace (hardystalliver, the by-drages will live fractives (1940) a before, but at the gainst the particular delication of the control of the control of the control of the control of the particular that the particular particular that the pa particular part-in the wire as well as in the appearance as though the wires conveyed the imposing power to the obloride of all yor, and sence the wires from a buttery are called the conductors; and electricians generally count. der that their only office is to conduct the in-

finence of the battery to the substance to be Again, let us repeat the experiment, but on a conductor of copper from the silver plate this time; everything will go on as before, but instead of the chlorine being evolved from the wire, it will combine with the copper, forming chloride of copper. Let us take away the chieride of silver, and ambstitute a vessel of cantene or surver, and sulphate of copper will be formed round one ware, and sulphuric acid will embine with the motal of the other

lengtime without weighing less than at the beginning. But now let the two wires be and the wires leading from them, positive and rought in centact, a torrent of hydrogen will negative poles. This would be very convegat in contact, a torrest of hydrogen will regative poose. This would be very conve-sediately rise from the silver, and so con-nient for use if possessed of uniformity, though the words positive and negative are not exthe instant they are separated. After this pressive of anything but fancies. But, unforaction of the silver has continued for some tunately, what one philosopher calls the posttime, if we weigh the zine we shall find it tive plate, another says is the negative; and much less than before: proving that while the a very great confusion exists about positive

solid the state of the property of the propert

he Voltaic Battery .--- Chemical Equivalents. Chloride, gold, NUMBER OF Sulphuric acid (real) We will now take a cursory view of the Sulphuric acid (commercial) etrino of cheggical equivalents, after which we many form a true catimate of the cost of Cyanide, silver Zing . . keeping any battery in notion for doing a given amount of work. We have already stated Iren . . that oxygen combines with zing to form exists Hydrogen . . of zinc, and that this exide combines with sulphuric sold to form a sulphute of zinc ; and Sulphur likewise with copper-first, we have exide of Carbon copper, and this, combining with sulphuric Muriatic nebl (real) . Muriatic schi (commercial) . acid, forms sulphate of copper; and we have also spoken of water being oxygen in combi-Nitric seld (resi) . . sation with bydrogen. Any person might Nitrie sold (commercial) auggest that there is just so much exygen to Sulphate, copper, (cryst.) Cyanhio, gold, - - 278
When we come to treat of the applicatio so much zing ; and so also of the sulphate of o much zing; and so sure or weather to the water—just so of the battery we shall have frequent use for

times, e renor times that quests. This has had been continued to the continued to continue that the discussion that the discussion of minutes peated on year. The continue that the discussion of the continue that the continue that the continue that the continued that the continue that the continued that t inition with one and a quarter, or any other at the intensity with waten and any occasion of fraction of a particle, but the union must, be the battery decompose the compound fluid. fraction or a particle, out the union house on the mattery accompany the Competent always that of whole numbers. This also ex-! We stated before, that by connecting a num-

noise, prosecting the relative needs, or the planer than one source, when he is this the en-components of chemicals, have constructed its mired energy to the next—and in this the en-ples of the relative atomic weight of the elerents, and from these tables we may calon- which would have been effected by only one late the proportions required to make any com-instrument—and as of any number of batte-pound. By analyzing water we obtain 8 parts rice in a series. In Smoot instrument, of the promot. By ananyoning tracer we outline o parting from it a series. In close of Biancounter, or series of oxygen, and I part of hydrogen: this hyof oxygen, and a past or nymogen; one sy- two outer when thomas on voluntee or dragen is the least quots that chemists have the compound finid, there is only one—the get observed, and they therefore conclude that _zinc--which can exert any chemical action on He atom is the lightest of all the atoms, and the fluid, and consequently the silver plate the acoust is use segments or and amounts, how the mund, and consequency and other place take it as the unit of the scale of equivalents.

It is moreover supposed that two or more citations the chemical action of the zine and expmentary atoms, when in union, may behave gen; but in Daniell's instrument there is a processly as though they were but one atom, chemical action between the sulphine of coppound atom with other atoms, and the occus-pound atom will have the combined weight of nections going on, just as if we had two Sanes's points access will have and community weight of meaning going on, just as it we man two collects its component atoms. This we will illustrate: | apparatus joined together—that we see that a One atom of hydrogen, =1, combines with Daniell's battery is two batteries in disguise. an atom of caygen, == 8, and forms an atom in Grove's battery there is a vigorous action of water m9; and again, one atom of copper between the nitric action and hydrogen =32, atom of oxygen =5, atom sulphuric we are let into the secret of a Daniell's butteneid med0, and 5 atoms of water == 15, allcom-ry having twice the intensity of a Smee's, and bine, and form an atom of sulphato of copper a Grove's three times the intensity. We may = 123. It can now be comprehended what is now form a true estimate of the cast of the meant by saying that I pound of hydrogen is voltair power, as obtained from the three inequal to 33 pounds of zinc, or 40 pounds of strements. In the first place the same quanopinia no or pennine of anny or to primine or streamment. An ano area peace are come quant-acid, or 125 pounds of sulphate of copper, tity will be obtained from each one by the se-Let us apply this to coloniate what quantity laties of a like quantity of ring a jet this bo of material will be required, and also the cost 33 omners, then we must have the equivalent or theorem was so required, and may use use use and owners, then we must neve too equivalent for making I pound of gas from zine and sul- of sulphusic acid, 67 cances; but it is obvious pharic ucid. In the first place we have wapainted ucin. In two sites peace we have the many parts, peaceties. After using up a good many ter composed of 1 part of hydrogen to 8 parts up in practice. After using up a good many exygen, and consequently I permit of hydrogen thousand pounds, I find that 33 ounces of zinc to 8 permits of exygen. We want to liberate sequine 90 ounces of good commercial and for the hydrogen, which we must do by absorbing profitable work. The zinc must be analyst the exygen; the S pounds of exygen will com-mated, and this will east in the oud 2 cents bine with 33 pounds of zine, and this with 40 per pound. Taking the cost of amalgamented pounds of real neid : we now have the quan- zinc castings at 10 ccuts, and acid-at 3d cents,

gas made in this way costs \$3,78. as made in this way costs \$3,78.\text{importance} \text{ equivalent of quantity in Suco's battery. In the apparatus of Daniell, in addition to the tables of chemical equivalents are; and the 40 cents, there will be the cost of an equivaperson who would use the battery to profit lent of sulphate of copper, this, at 0 cents, will mild have them in command like the fagors be 125+9+16=70 cents, making in all 110 of the right hand.

ints and compounds used in electrotyping : give 32 cents to be taken from the 112; but if we take in view the extra cost for peronadia-Chloring 20 params, remains of solution of sulphate of Copper Gold, copper, ultimate joss of the copper cup and 32 the incressed local action, the 32 cents will be Oxygen, taken up, springs shall have 110 cents for the

Chloride, platinum, - - 170 200

of the uniterior of the unitery we shall have frequent use for the unitery we shall have frequent use for the uniterior was a constantly manifely and the same of the uniterior and the uniterio minist saying so no more appropriate ever lables the most work experiments are nome. That the intentity of Daniti's was twice that very remoderal, and which no person over labates the most words experiments are some. that the intensity of Daniell's was twice that could have suggested, by that the quades different mode. By suggested the same law of Source and the same law every consistent of t sty one detengent is use course mavery, one of the state of the state

impossile are so precise in the proportions, of any one element affected by the battery accomponents are no precure in the properties of any one archient among by the dataset for it is impossible for one particle to be in tion. We will now complete intensity simply or it or impossessive ser tone presence or see an ellow. We will now consecut mixturely simply antique with one and a quarter, or any other as the intensity with which the two bedies of

alruys time of wisco miniorin. Annu mes unplains how it is that so many elemicals can be red batteries together the intensity was in-tensed and the two or three elements.

These particles are called atom, and check the control of the will be apparent when we con-mists, by clustering the relative weight of the cents; but here we obtain 32 ounces of copper Below is a table of equivalents of some clo- from the anit—this, at 1 cent per cursos, will

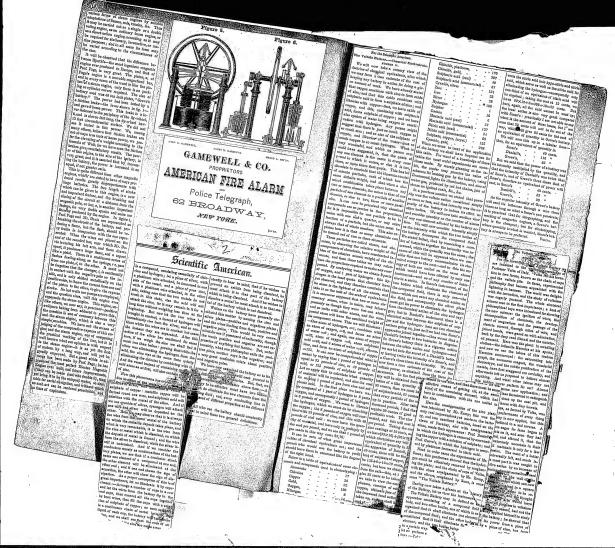
verts the nitric acid into hype-nitric and nitric acid, which serve as well as the nitrie sold for the plininating the hydrogen-consequently only con-third of an equivalent of mitric sold will be required; taking the cost at 12 cents, wa have 09×12+3=396+16=25 cents. But here, again, all the acid exampt be used up; the local action is also very great compared the seas action is any very great compared with Smee's; practically I am notable to say what is the amount of these lesses, but I' am sure that 20 cents will not be far out of the way, which will give S5 cents for the cost of en equivalent of quantity in Grove's battery. We will sum this up in a tabular for thus, for an equivalent of quantity in

Sance's Smee's 40 cents. Generala . . 85 "

ideal combination takes place between any tity was the voltate action correlated simply through as what a Smort and properties to we or more elements, the union is that of our as more or less, and that intensity was the cast it is precived that for tolegraphing, and the two or more elements, the union is last of early as more or loss, and that intensity was the co. It is precived that for indepophing and the precision of more control to be on, three or important points of the control to be on, three or important points of the control to be only three or important points of the control to the control

The Veinale, instirry, man a property of the invention of the Voltac Entery we are induced to the complementaries of Professor Volta of Italy. Volta sit his invention in two forms, known as the chain of cape and the voltaic pile. In these, experimental philosophy first became somminted with the lightning in harness. The world was delightwith the invention, and the study of voltaism was eagerly pursued. The whole electrical science ross to the first importance; a best of philosophical toys were introduced for showing the new science: the ignition of wires, the decomposition of chemicals the develop ment of magnetism and the passage of the electric current, through miles of wire, and joined hands, were gazed on with admiration. both by the deep read literati and the untutor ed research. Here was the giant, in swadling clothes—the infantile Hercules at his sports: and now we see the labors of this mode Hercules commenced: the astounding telegraph, the enormous magnet, the wonderful electrotype, and the subtle parification of the metals, have first staggered our credulity, and afterwards left us prepared to believe almost anything. And what other labors may not this hidden power perform for us? Almost every day brings some new application; and more than once it has threatened to extinguish the blast furnace, close up the coal pit, and supplant the iron horse with firry bowels.

The chain of cups, as formed by Volta, was competent to the performance of every thing to which the battery is now applied, but this Instrument was destined to a sad reverse. A host of philosophers eager for fame began to make improvements on it, and soon they had so cramped, bound and altered it that the best forms were extremely uncertain in their setion, and would maintain it only for a few minutes in succession. The want of a butter apparatus was universally felt, and much inmented. For the most part it was sought to semily the defective action by an increase of site, and the lecturing-greatest construction used as bettery as big model, at the wall offsite occurs, to perform find interiority belonds in a square belonging with a state of the state of th remedy the defective action, by an increase of the chemistry of the battery; he showed that it did not derive its power from a place of copper looked at by a piece of zine, but from



The year the nontinengements of the property of the filting of the continue of the property of the filting of the property of the Synthetic with the occompy of them." I can-be a great proper than the property of the plane, five milies an hour with about 15 tess, the foligraph, would not ignite a platform has a great with him, but, on the context, plane plane, and ten years after, the originated Mr. Sic. wire sencharonatch of an hoch in distance of the property of the propert Like his residuate without being year likely a pears to compose a fied to investigate this subject without being considered a great improvement, and carried Ten pairs of such plates will work the receivengines ever before tried. In my reciprocating one of the largest and strongest horses I ever one of the magnetic pixtes, if I may so call anw, and he is well trained to the work of any implied with nearly an equal force throughout the stroke, and this for any length from its station, this horse was attached to it, of stroke desired. The rotary axial is the per- but was found to be unable to pull it up the fection of the improvement, and does not seem grade over which the car was propelled by feetien or the improvements on over the converte the difficulties inherent in rotary magnetism 6 miles an hour. It required five steam engines, for my phineur require no packing. When the description of my engine is published, which will be ere long, I think when driven by magnetic power; and moreyour writer and others will appreciate its pr- over, when it ascended this grade at six miles cultarities, and I hope he will suspend his an hear, the power of the battery was not foljudgment till he has an opportunity of being by up; and I have discovered a cause of great well acquainted with its details. I have no additional friction when the engine was in ver claimed for electro-magnetic power that it action, the remedy for which is obvious. is er would be, superior to steam, that is, in In regard to the doctrine of Liebig, that the every sespect, nor is it necessary that it should nime cannot give out more power than the coal be, to assuve the purposes of my investigat-required to smolt it, it is unfortunate, and tions. The cost of the power has been with though entertaining the highest respect for his

me a successions questions and to be practiced absurdity. It is reasonable to sup-settled first before ever the cost could be fairly pose that a given amount of nine combining ascertained. The abstract rule laid down by with exygen, would not eliminate more he M. Jonk, Messra Hunt, Scoresby, Oceatol, and than would be required to overcome this affi-cothers, of the absolute duty performed by a mity, but we have no proof of any such relagiven quantity of rine, is well enough as far it into delectricity to heat as to make the ma-as their experiments went, but is of little or chanical power of the one the measure of the my value in the practical question of the avail—impedantial power of the other. Whatever ability of this power. To illustrate my mean- may be the connection and analogy between ing, take the highest duty of coal in the best heat and electricity, we must consider them sign the injuries was a word; will anyone as distinct forces, in their rectantical rela-pretend to say that there is no room for improvement even three? Why, in the Comish that as the metire force, and no electricity in engines, within a few years, the expense of a the caldation of nine in the battery, we down berse-power has been reduced from 10.1 to 2d. lopo both hest and electricity, the latter only per diem. But suppose it be admitted that the minimum cost has been attained; how forces regulating affinities, may be interesti-many engines in the world can be worked as as a matter of speculation, but, as famishir

me a subordinate question, knowing full well reputation and ability, I must pronounce it a

dimore, M.L. Chicago, Ill. Cincinnati, Ohto Cambridge, Mass. Charlestown, Mars., Covington, Ky., Dayten Oble Elizabeth, N. J., Fall River, Mass., Fitchburg, Mass., cheap as those engines? In resility, M. Joulo's a practical estimate for the amount of moche calculation makes the expense of magnetic nical or available power, it cannot stand, and Screen City, N. J. Louis ville, Ry., Lawrence, Mass., Mobile, Ala., Montreal, Canada, power less than is atom power at the present necessarily involves the unwarrantable as day in some of our lecomotive engines. The sumption that the whole power or inherent cost, therefore, I say, is not the practical ques- force may be eliminated and rendered availation, and if the magnetic power will cost more bie in each case. But Liebig goes still furthan the dearest steam power, still, if we ren- ther: he maintains that the heating power of New York City. Lynn, Mass., Lowell, Mass. der it an available power in other respects, it the current is the equivalent of its mechanic

must come into use for many and speciage power through electro-magnetism; or, in ethis and transfer in these systems of most purposes, by reason of its great advanger words, that the heat developed by the past IRE ALARM AND POLICE TELEGIRAPHS. must come the war rates, now produce the control of the control of

NLY PERFECT, COMPLETE, AND RELIABLE SYSTEM

PIRE ALARM TELEGRAPH IN THE WORLD. HOSSES AND ADDRESS TRANSPORT IN THE WORLD.

HOSSES GAMEWELL & CO. are the owners of the origina.

HOSSES GAME GLARITAY PATENTS, one of the mean potent of the property of the control of the property of the prope MORE THAN TWENTY PATENTS. The introduction and operation of the AUTONATIO SYNTEM Ab tonation of orange. distribution of the beardt which it con-that even small communities can predictly scopt and

ref. Page's Electre-Magnetle Loremetive. The following we have noticed in a great

150

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This system of Fire Alarm and Police Telegraph, with a Con-

now in operation in the following cities, to which reference is

de for evidence of its great surganoury, value and unr

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d office, or gron the

Albany, N. Y. Alleghany, Pa., Buston, Mass., Buffalo, N. Y., General Agent and Spreciptonions

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Omsha, Neb., Philadelphia, Pa., Pittsburg, Pa., Portland, Me.,

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Providence, R. I., Quebec, L. I., Rochester, N. Y., Richmond, Va., Indianapolis, Ind.,

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Worcester, Mass., New Bedford, Mass

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Newark, N. J.

General Agent for the West and North West.

Special Agent for Virginia and North Carolina.

test favorable arrangements, eight pounds are horse. equired to start a ten on a perfectly lovel rail, It is very evident that the correct data for nd seven psunds will barely keep a ton in estimating the power of a locomotive, is not olion. Ordina lly, upon railroads, the al- clearly understood-or rather, let us say, not wance is ten p unds to a ton, but this apesonly to cars unincumbered by machine. The power of a lecomotive is not esti-The friction of lecomotive machinery ren- matel by the old fashioned rale of a horseas its draught far greater, and can only be walking at the rate of 25 miles an hour and s its draught far greater, and can only be arranged to the over a palley, as estimated trately ascertained by experiment in each by Boulton and Watt. Upon a level railroad,

The magnetic locometive, the first of its ol ever made, is imperfect, and, from the per hour, but as that eminent engineer, Pamness and staffaces of all the work, it runs asthaly hard. We will take 200 nounds. which is below the actual power required to sen it to motion on a level portion of the ead. A horse-power, upon the usual cetiate, is 150 pounds 23 miles an honr, or 375 us hour on a lovel road (it has in fast made) of the engine. The account formula is P, the an nour on a lever read (it has in fast roads of more) and its installant of the variety of the temperature of the temperature of the variety of variety constitut, which gives right/man power. But | steam, and the quentity that one he raised he ragion has mare than the. It has praise it as given time, we'll known by the most account of the results of t

was found necessary to throw out of action then we must take into account that every was sound necessary to there out of astice limits we must take into account that every five of the bullets, and there as the most into percent point is the arcies. The silication of the silication of the desires are silication of the silication o enting sultable perous cells, and the manufac- within reasonable bounds). coming sansatus perovis ceits, and the manufac-tuse of such as I needed was, after great ear. Asfer as we have been able to search back, pering given up is woo of the best pointer one. In the destroomingually logomotive is not the tablishments in the country as a thing ins.

practicable. ingenuity of Mr. Ari Davis, my engineer, but a fallere, and so was one by a Mr. Little, in Ingensity of Mr. Ari Davis, my engineer, but in faisters, and so was coopy a Mr. Little, in they were smade of weak clay, and have now, Engined, which was ticted, for one requirements on much impatted as to break from the slightest coarses. Before the special coarses, and the defect was the coarse of the most of them breaks, and the defect prefer Tags to make experiments in the appliwas only partially repaired. Not far from Bla- cation of electe-magnetism as a mechanical densburg two more gave way, and detracted power; nor do we think one betby qualified to at once greatly from our working power. On make the experiments could have been selectat least one half of our power. The running we should like to see more economy in some therey-nine muster, we store stopped on movey magnet of movers, that clear the way five times, or we should have proba- and art. It is our opinion, however, that clear bly made the run in less than thirty minutes. tre-magnetism is far inferior to steam power, three dolays—that is, the engines were backed that electro-magnetism would be more safe mature or the engine, which I commentated indigated from the noise and the gaste of and some years since, that the reventing powers is for the locative, as a foun explosions. A hump quester than the proposition generals is the near-greater than the proposition groups in a server of the consideration and convenients support by twice as great. When the proposition of the p of the battery current, and augments its of plainness) of the zine in the battery which gefects. The defect of the cells is easily rememberates the alrettle force, just as the combusied. The trouble growing out of the oscilla-

about placters miles an bour, and some more than in any former experie In the foregoing description of Prof. Page's extended this article to an undue length, and ther of papers as taken from the Washing- Electro-Magnetis Locomotive we have ended will not enter at present into details of the on Intelligencer, and communicated by Pecl. vored to discover what he means by "eight Page. It details the last expediment made pounds are required beauts as on on a perfect-with his electro-magnetic incomotive at Wash. ngton. We have commented upon it briefly, et-laboring force-in more dead weight. He

his week, and may return to the subject next cays, "a horse-power is 150 pounds moving at 24 miles per hour," and the suced of his la. The loccontive, with the battery fully char- comotive being 15 miles per hour its total ged, weight 105 tons. With the seven pas- weight 11 tons, gives it 3 horse-power, but he engers taken on the trip to and from Bisdens. says it has more power when moving slow og, the weight was Li tons. Under the than fast, and its actual power is all of 24

a horse can draw 10 tons at the rate of 2 miles bour says, "It is an unintelligible fiction to pretend to assimilate Incomptives to horses-The formula for calculating the power of a Incomptive is PasWrp-f, or Past-f. The first formula Is, P, the power, equal to W, the weight multiplied into u, the velocity of the unds 1 mile an hour. The speed of the pistons, into p the pressure of steam in square inches on them, less f, the friction of the parts the arises from a want of insulation in the amount of feel, and for the longest time with the least repairs. If it is meant by the Sibs. After the engine was placed on the road R mentioned above, "the presence and velocity,"

I had neither the time nor means, as the track with which we are now accessmidated is soon to be a second we accessmedated is soon o be filled up for the purposes of the Railroad motives of 14 tees, are more effective than Company. Another arrious difficulty encountred, was the breaking of the precess cills in tried, was the breaking of the precess crills in implies engine builder in our country but could be the builtery, examing a unitwise of the two builds and no interception of a karp position of the power. I had great difficulty in pear the power. I had great difficulty in pear the power of t

wasticable.

It was, however, accomplished through the tried by one Davidson, in Scotland, but it was our return, about two miles from Bladenshung, ed. We like to ree a profession liberality in ma-there more gave way, and we were reduced to king appropriations for scientific purposes, and the from Washington and Bladensburg was thirty-nine minutes. We were stopped on money might be devoted to advance science Golog and coming there were seven stops and and far more expensive. It has been stated in ames compa—casa is, and engined were cauted a time electro-inagorum, wears and more which three times, but without entirely issing heads—than ateam, as there would no explosions. We way. It is a very important and interesting apprehend, that as much danger night to an-feature of the engine, which I demonstrated ticipated from the acids and the gases of and

to smelt it ?" A most e says no, and we believe he laright; but we ha

STANDARD TELEGRAPH INSTRUMENTS: RELAYS, SOUNDERS, REGISTERS AND KEYS

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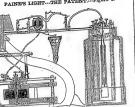
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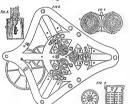




This Light was patented in England on the j with water; t t are the cells made believe and 2015 Augon wan processed in gauginess on the water; at not one commissed process and 12th of June, 1850, but has only been recent- containing water. They are commented at &. We had seen the drawings and fig. 1. A rotary motion is given to these helidescriptions of it in the London Mechanics' cee by clock-work which we have not fully ex-Magazine and the Patent Journal, but we hibited—this being an immaterial considerawhilst for "Newton's Reportory of investions" idea. This belief an immaterial considera-cing the second section of the second sections of the second section upon for April. as the native was summed in the second section of the section of th for April, as the parent was recured in the a spinish between the poles of a pair of perma. for feel, or the patient was removed in the auxiliary and the selection of the patient of the pa

posts un conveniente et un magnete, 17g. 5 stat. 3, with the believe cells, should be jou une room, as, chin troot parasited by a large verbild settin of a profession attended by a plant of the state are some netters of reference indicate like | the beliew offit forwards the sing and after evercement that of the spring 5, the philinem parts. A A are two believe, the correct of which like electricity is state the water. The high parts of the correct of the c

Pienre 2.



made as follows: G, (there are two) fig. 2, is | In fig. 5, n, is a platform wire soldered to of electrodes as described. Third, -applying a wheel with its periphery covered with a non- one of the conductors, it, its other end is electricity to the decomposition of fluids by conducting substance except at one point, II, wound into a coli, making a cylinder. Into pulsation. Fourth,—the construction and use which is a consistent. This who is made to the continuous wire, p. is heart-left. The lof a governor for regulating the electric cuspress by a sping arm, I, against the ring, E, lower end of this wire is soldered to a metallic rents. Fifth,—the mode of catalysing hydroon the spindle band. The stud, K, fig. 1 britten at the lower and of the negative cold. gen gas by passing it through spirits of turwhich supports the syring sem is isolated, and

"This arrangement may be represed when expending, or other hydrocarbon, at common the condesting wine, J, state from the sum. I. posite effects are detailed." The electrical is temperatures. Sixth,—the nos of non-conflat temperatures in o elicitates to tem to electrical is a syrindizatic except, for being required places and lenshind generates for the sum of the state of the sum of the s see can take place until the conducting non-conductor, the upper end of which is conveying and receiving the gaves. oint, H, on the wheel, G, comes in contact piecced with small holes to allow the escape with the ring, E. According to the relative of the gases evolved. There is a small hele next week, but the full description and some diameters of the wheels, G. G, and the rings, in its bottom to allow water to enter therein of the patent is here given, and in the meanfrom a tank. Another electede may be time we leave the specification to the reflec-made by letting the wise down into the water tions of our readers. E E', so will be the amount of fluid accumulated between the discharges.

sel about one-third its depth, and termina ting in a horizontal copper plate, in which are inserted a number of platinum wires extending downwards into the centre of a number of um cells attached to the batters of the cell. Each cell must be covered with some t-conducting substance. In fg. 3, the electrode shown is constructed upon the principle of conveying the currents on large free condu tors terminating in a number of radial points 1 1,—the negative pole, 2, or pole points radia ting from a contro around the conductor's ter minus, and the positive pole points, 3, converging from the inside of the cell, 4. When the esitive pole enters the cell, the negative le attached to its inside. . The casing of the electeode must be covered on the outside with a on-conducting substance. The top, 5, is nerforated, and its bottem, 6, has an apertu of about 1-5 its diameter. The conductors are nsulated by passing them though glass tubes. The electrode, f, is the end of the conducting wire, and the cell in fig. 1 is where water is osed. The water to be decomposed out be boiled, to expel the atmospheric sir.

In fig. 1 the conductors, J, are connected with the heliors around an electro magnet, N and then pass along a conductor, O, to curial evlinder, P. Q, is a platinum bar pen-

ter Q' is drawn out, a cylinder, Z, is provided and filled with mercury, with a bar, X, dipping into it. The mercury is here at such a height, that before Q' leaves its bath, the current passes into Z, and passes by the wire, a, to the earth

The hydrogen evolved from the water in the tell of the electrode, is carried quickly away by a tube to a vessel containing turpentine; Ithis is not shown in any of the drawings-a great defeat in the patent]; and to the end of the take that dies into the turpentine, there is a tube wick of an argand burner tied; this is to prolong the contact of the gas with the tursenting. If the end of the tube is perforated, it is said to answer as well. All the pipes must be electrical non-conducting inside. This process makes the gas luminiferous. The colump of turpentine should be considerable to reevent the gas passing too fast through it.

The claims for this invention are, first,—the se of helices furnished with hollow helical coils to be filled with water or other electric absorbent. Second,-the construction and use

Mere remarks on this subject will appear

Electricity and Steam Bellere.

[The accompanying experiments and no enecting the causes of steam boiler explons, and the means of preventing the same,

are by Mr. Quarterman, of this city. I are by the quanterman, we will be the fair plots, speak of the We will, in the fair plots, speak of the causes of status belier exploitans. Secondly, the causes of status belier exploitans. Secondly, the made of presenting the sames, and and the made of presenting the sames and salesy present this. In such cases, viz., the conductors, and so placed tentes used the larkey prevent this. In such cases, viz., the conductors, and so placed that as manned the

on the mode of prevening to the latter, the femine of the electricity would be electric finit may be drawn of silently, when CAUREA.—Theory :- That the steam boiler increased, and the danger still greater. is, simply considered, a hydro and thermo is, sumpty combinered, an extraction of the surrounding defects by fire, neglect in examining and clean- of by repeated and protogod experiments. wood, &c., particularly in steamboats, by hest ing, over presents, correins, &c., ass amongst. The whole to be so fired that they will notice

wood, occ., parinements, in measurement, or season ling, over-pressure, occreation, occ., as among set in the wall of disfigure the machinery, nor be at all in the and paint, occurred a management of the boller is, in consequence, nearly per- evidence, on record, which goes to prove the way That water has a great cancelly for stoods

ity-that this capacity changes, in degree, Lie agent. with variations of pressure and temperature; and also that its conducting power varies from a boiler, called the hydro electrical machine the same causes; that saline and foreign mat- and has produced great results—but has overter, impregnating it, affect both its capacity looked or not mentioned the fact, that the what will be the properties of that compare That as the atmospherical electricity, near builty.

the earth, particularly in stormy weather, frequently changes from positive to negative, and issuing through a small orifice produces an electricity cause them to re-unite explosively? rice versa, -- this change taking place, almost ceedingly large quantities of electricity. instantaneously, there is much danger of the Locomotive engines, not being so complete boiler exploding, before the equilibrium of the ty insulated, and being almost surrounded by perfect conductors, the electric fluid, in the electricity, between the inside and outside, of a pure atmosphere, are not so liable to explothe same; can be restored—either by induc-sions, as those of steam vessels. And amongst as in similar cases of imperfect conductors. tion, diffusion, &c., particularly if the water the latter, the high pressure will be the most and steam should be highly charged, and the liable. engine be at rest

from the insulated state of the holler, in con- electricity passes of with the steam. nection with increased temperature, and the A great difference exists, however, between

feetly insulated.

first absorbing a postion of the oxygen, pro- mised ducing black oxide of iron, then hydrogen is Lastly, there are many indications that elec- discovered to be latent heat, set free by eva-

cleated follow will have no measure there of dif-ference of the state ducted to the condenser, &c.

red hot flues, &c. Now, if part of the oxygen be absorbed, by- give a new impetus to the science. drogen will be present; should chlorine be ra-

berated hydrogen, but will aid the further de- tell. octaved systems, who want was avenuated to the composition of the water and atom, in order to employition of the water and atom, in order to until with a latter gas, and electricity most we have adopted to prevent explosions 11. We do not presume that our mode and to make with the latter gas, and electricity most we have adopted to prevent explosions 11. We do not presume that our mode and will still be abundantly increased.

mpure state, may obstruct the passage of that and outside of the boiler, no far as positive committed theoretically on a few shorts of paimparts asset, may construct the passage of time and constant of the control of t tion or after a stroke or two of the pictes. In metallic conductors, insulated or otherwise, as much more will, no doubt, he yet discovered. such acces a spark of flash may eason, and an the cose may require, either in the loads stage of the loads stage of the spark of the may eason and an the cose may require, either in the loads stage of the loads stage of the loads of the loads of the loads and the loads and the loads of the loads and the loads a

drogen units explosively : flame, getaler or denser, &c., with the boiler, longitudinally or less beat, the sun's rays, difficulty daylight, the electric spark, decomposition of water, dec

Water at rest and at a temperature of 329, bereafter be deemed expolient.
will absorb 180 volumes of chlorine; and at Aiso a chain or some other metallic cor

the temperature of 158°, only 65 volumesence Its danger in steam boilers

tenacity of the iron, and may cause a down- same time in fell view of the engine recorded

That inferior materials, bad workmanship, cas of those conductors can only be ascertain-

fact that other causes exist also-by some persons, called an explosive and an impendera- be partly absorbed, by the red hot flues, and

Faraday has experimented extensively upon same electrical power exists in every working and what variations will be produced in its

It is also an established fact, that etenin

A leyden far or a coated flask, cannot be

So with the steam boller, when it has its not the stroke of the vision produce vibration crust or deposite on the inside; the former in- due portion of water, and a mean pressure of recoil, &c., in the boiler? creasing the quantity, and the latter the in- steam, viz., within the limits of its rated tensity of the electricity, until, like a Leyden weight per square leads; if at the same time the boilers, through which the explosion has jar overcharged, the boiler will discharge it. there he an onission of steam, by the working taken place? Even while they have a proper of the engine &co

electricity, and is not insulated but the boll- an uniform current of electricity being estab. Ing the water to become too low in the bolls. er is the actual generator, and is almost per- lished, vir., from and to the boiler, a great as mentioned in the preceding hypothesis. portion of heat would be secured. For in pro-Cases of this nature may reveably be conmouthin as the electric fluid is extracted, other beat? Will not its extraction from water, firmed by examining portions of the expladed things being causa, so in recording will the other things being equal,) disminish the temps boller, to see if a change of the metallic use, best diminish in the boller. See Farm ratios of the latter? Will not the converse tickee have taken place, or other electrical plus, day's hydro electrical experiments, and W. B., hold good?

Grave's communication or amgoulte brant, to 7th, We are aware that most all the dan-

That, when the water is low enough in the Royal Society of London, May 24, 1850. gors mentioned in our theory arise from neglicoller to allow the fines, &c., to become bars. The probability is, that there will be a greater gence and over-pressure. But if it be possible and red hot, a change from negative to peel- uniformity of working, less jarring and vibra- to counteract these evils completely, in the tive, &c., may then be generated. In this tion of the machinery-less foaming of the manner we have proposed, much good will recase steam is decomposed—the red hot iron water, and a large percentage of heat coone. sult both in the saving of life and property.

takes up, reducing the black calls to the metallic state.

mens are produced principally by catalysis of similarity of the meta are produced principally by catalysis. During this operation, the electricity is set and condensation; that positive regards, content of colonicity in the stem belief pre-free by decompasition, and its accumulation is set only inclifications of the original fluid serve a greater uniformity of host, and at a very rapid. Should the engine be at rest, the depending entirely upon the generating pow. less cost. logous to light and heat, except in its most without the evolution or absorption of that Another dangerous cause in marine engines, condensed feems, as thunder storms, &c. If fluid.

pidly evolved, it will not only take up the li-further experiments may develop we cannot atopped; because the emission of atom pre-

for is, therefore, the rest accumulation of elecform a complete or besken circuit, moveable or of its terr Arain, equal measures of chiefins and by-

eating with the botter of Again, the red hot flues, while bare, may termster, and a prime conductor, &c., can be absorb a portion of electricity, destroying the made permanent and shaltered, being at the the other souds

the engine is at rest, &c. The correct distan-

GENERAL REMARKS,-1st. If oxygen should the hydrogen should not re-act upon the black exide of icen, will it combine under peculiar presence, and temperature with the water and steam, and form a new compound? If so, conducting powers? If exygen, hydrogen,

and atmospheric air exist senarately, will 2nd. The water pumps form a metallic conection with the boiler, still, if they are not boiler, if in excess, may find a shorter nath,

3rd. May not the sudden introduction o venter mean the sail bet flore but sometime of apheroidal form, increase the intensity of the That this danger would selse, principally charged, when filled with hot water, as the elettricity, and an explosion result from the same, and after the engine being at reat will

4th. Is it not often the strongest part of supply of water.

A great difference exists, however, between New if it were possible, by diligence, care,
the two, viz., the jar is only the receiver of &c., to keep the engine in this working state, rine engines, and only by negligence, in allow 6th. Is not electricity the principle of latent

8th. If magnetism and electricity should b

is the presence of chlorine, accruing from the farther experiment should demonstrate this 10th. There are two important points in our om the salt deposited in the boller) by the bie, that clostricity will then become a great stood : first, too little water in the boller, preand useful motive power, at all events it may ducing decomposition, &c., as before me tioned; and, second, by not blowing off steam, We now conclude our present theory : what at a certain pressure, &c., when the engine is

ill still be abundantly increared.

of glasse believe.

of glasse believe.

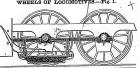
theory are without defects. The subject is 10 clinical to also a non-conductor of electric Mone.—To regulate the electricity and precity, and should it exist in a pure, or even an acroe an equilibrium, in relation to the inside varied, to be demonstrated incohanteally or

acetylon paper in ca satu nent is s maction meter un wirea

For the

ly a spou evolved. nod in

ELECTRO-MAGNETISM TO GIVE ADHESION TO THE WHEELS OF LOCOMOTIVES .-- Fig. 1.



This, invention, to give adhesion to the dri- | two oil boxes of the wheels. The box, A, c This, investion, to give adhesion to the ort-ting wheel of locemonities, has recently been be raised and sowered by sevens, so as to keep platested in France by MM. Amberger and from, and in owe in the cases of experiment, on the Lyour Railrein. The following as-cent of 1 meters, with the limitation of the engine of experiment of the country with the limitation of the engine of experiment of the states, with the limitation of the engine of the state of the country of the country

some of in nations, with the Illimentation, has been transitable of the Scientitia Amendesia of the Scientitia Amendesia Scientitia (Scientitia) and closing the galaxier closest, to see the Scientitia (Scientitia) and closing the galaxier closest, to see the scientific and control to the tenter of the scientitia of the scientitia of the scientitia control to see the scientitia control to scientitia control to see the scientitia control to scientitia contains a number of windings of expere wire, the piece of wood is a non-conductor. By re-man forms a hollow electromagnet. It com-responds to the control of the wire. By A. as it would not control of the control o milit a rrangement is placed upon both dri placed bubind the tenter; each now a surviva-tion wheels, each whele being surrounded and in eight compartments, which communists running through the helibov magnet, as shown with another by means of an india rubber in fig. 1. Et is a strong tar, and D D' are take, which enclose the instellar necessary take, which enclose the instellar necessary me two supports to wants the monow electro- to produce the gravations.

Inagnetic box, A, is secured. F F' are the To give the driving wheels adhesion (at

Figure 3.

cording to the inventors), when the locome-tive is desired to ascend on inclined plane, the angineer merely turns the key, H, and by that ment and application of electro-magnetism turns the driving wheels are magnetized and. The editor of the "Genic Industriel" hopes the experiment will be successful, as large

This is an invention upon the same princi-line someon, as was stated in the New York ple proposed, as was stated in the New York; them. The attractive power of electro-mist, or Tribmo some times ago, to be applied assessme task savey well understood, and we cannot of our railrooth. This strangement is over some only obtained to be primed by this stately much superfer to the com semistioned, telement, and we believe there will not be taken the contractive of the same time of the contractive of effect the object contemplated, by the inventees. If the hollow electro-insquest attract endeaver to obtain an early account of them, the wheels around which they are placed, a for the benefit of our readers, in the meantime useful adherive effect can only be preduced by the invention is here clearly set before our rendering the trend of the wheels and the rails people.

[Fron the Assertern Journal of Science sed Atts.]
The Nature and Duration of the Discharge of a Leydon Jar.

When the primary coll of an inductorium is connected with a voltaic battery, the act of interrupting the connection, as is well known, produces a current of electricity in the secondary coli, which can be accumulated in a Loyden jar, secondary cell, which can be accumulated in a Layden large and then discharged by a spart. Now its possible to englust either the electrical surface of the lar, or its striking dis-tance, so that, with a given cell, only a single spark will be produced each time that the battery circuit is broken; but in products and time une the direct product is broken; out in the great majority of cases, it will happen that enough electricity will be generated to charge and discharge the jar an number of times. The dreamstance that electricity is continuously furnished by the cold during the fraction of a second, is favorable to the production of these multiple discharges the majority and uncentrated by Depfears the tharges, has been demonstrated by Professor Rood in a numor of experiments; from which it also appears probable that in in increase in the striking distance is accompanied by a orresponding increase in the interval between the spark multiple discharges, though upon the whole shortens the total duration of the act, by diminishing the

A Novel and Simple Electric Light.

Dr. Gelasler, of Bonn, Gormany, whose name is inseparbly associated with some of the most betutiful experiments bly associated with some of the most bewulful experiments that can be performed by the agency of electricity, makes an electrical vacuum tube that may be lighted without cliber induction out for rictional machine. It consists of the control of the control machine. It consists of the control of a semanter exampled time. It has outward time no rubbed with a piece of flannel, or any of the fare generally used in exciting the electrophorus, the inner table will be flid-mined with flashes of mellow light. The light is faint at first, but gradually becomes brighter and softer. It is mo-mentary in duration: but if the tube be rapidly frictioned, an optical delusion will render it continuous. If the opera-tor have at his disposal a piece of vulcanite, previously extor nave at ms disposal a proce of versionity, proviously collect, he may, after educing signs of cleerical excitoment within the tabe, entirely disponse with the use of his sinar-not or fur. This will be found to minister very much to his nol or fur. This will be found to minister very much to his personal case and consfort. He may continue the experiments, and with cananced effect, by moving the sheet of valcanite rayidy up and down at a slight distance from the cube. This beautiful phenomenon is an effect of induction.



The second secon in announcement by Mr. Payno of Nowark, N. J.,

A Bussian chemist, P. Alexejeff, describes two nent experiments. For the preparation of the spontaneously combustible brown acetylon pour upon alcoholate of soda in a flask, in drops, the bromide of mono bromethyle, and presently a spen-taneously combustible gas will be evolved. It can be collected over mercury, and in order to show the combination of acutylone with copper immerse a piece of paper in the gas which has previously been satu-rated with an ammonized chloride of cop-per solution. The second experiment is a convenient way of exhibiting the reactions of ozone. Invert a Hofmann cadiometer and after counceling the platinum wires with an induction apparatus pass exigen gass alowly through the tube and finally through Liebig a potesh bulke, in which is a solution of fedide of potessium and storch. The presence of the onone wil presently be shown by the liberation of the lodine and the blucing of the starch-

SA SHOW LED WITH A SHOW A SHOW

LECTURE-ROOM EXPERIMENTS I his experiments with electricity for motive power, though pooled at by scientific journals, we are not inclined to laugh at. Mr. Payne has succeeded in developing enormous power by an application of battery very insignificant. He claims to have lifted a ton by a battery of nine curs with the face of a five of inch magnet removed quarter of an inch from the mass. He is now constructing a 25 horse power engine which he expects to work with a battery of nine cups. If Mr. & Payne succeeds in these experiments, he will solve the estion of car power in cities, and a vast range of ther uses to which electric power can be applied.

AN RASY TELEGRAPH CODE.

The following is suggested as an easily learned code for cancern use, by which messages of all kinds may be trans-sitted with certainty, by means of the ordinary electric telmittee with certainty, by means of the ordinary electric for-graphic instruments, by mannof bolls, by whistles, by fire-arms or cannon, by lights, lanteras, rockets, or finnes, by the finah of reflectors, by fings and levers, by the motion of the human limbs, arms, hands, or fingers. It may be writen on paper, communicated by touch, drummed on the ta-de, or transmitted by any of the known means of signalizmg. It may be employed with facility by the blind, the leaf and dumb; and will enable people who must talk in thurch to do so without disturbing their neighbors. It may

course to us so vanout disturbing their neighbors. It may be learned by anybody in fire minutes. The code is formed by dividing the alphabet into five zec-thors, supercented by the five rowels. A, E, I, O, U. Eve-tybody can remember the vowels. For the first vowel, A, make one stroke, flash, sound, or medion; for E two strokes, make one strokes, O four strokes, U five strokes. Make the motions for three section latters quickly, but ovenly.

monoms for these section letters quickly, but evenly, lifer the reanning letters, give the signal for the section letter, as above, and follow with one stroke for each letter belonging to that section until the letter vanted is reached. THE SCHEWINFO ALBRUCAN TELEGRAPHIC CODE. The Secti

39.	٨	1	E	11	I ())	0	1311	UIIII
_		11,		H1	J III I		0011	WHILE
	ь	1111	B	iiiii	LIHITI	B	100111	X 1001111
A.					MINITED	T	131111111	2 300 11111

Example: To signalize the letter D, give one stroke for he section letter, A, and follow with three slow strokes, the

the section letter, A, and follow with three answ strokes, the last being the eigraal for D.

To eignalize L: Give three quick strokes for the section letter, [6] observed by three slow strokes, the last being the signal for L.

To eignalize W: Give five quick strokes for the section letter, [7] followed by two slow strokes, the last being the signal for W.

The quick strokes are to be made twice as fast as the slow

tes. Practice slowly. Speed will follow accurate proc-After each complete letter signal is given, a space or use, equal in duration to one quick and one slow stroke, and be made. The space or pause between words is equal o two long strokes. Promple of written messages

.7	11 111	E E	101	s 0.00	C	1	E I	8
		. P	ň	ığı				11 II
		0		N 		maii iii	B	BULL
E II	e NII	8 111 110	å	mit.	HII	ı İ	111	O IIII
p 1111	E		1					

NUMERALS, ETC.-To signalize numerals, give two quick this strokes, followed by one slow stroke for each numeral until the figure wanted is reached. Thus:

This alphabet involves the use of many more signals than the Morse; but it is much more easily learned and remom-bered than the Morse, or any other that has come under our notlen

THE ACTIONATE STREET, THE ACTIONATE STREET,

The Automatic Telegraph System.
This system is being tested by the Philadelphia, Reading and Pottaville Telegraph Company, and found to work very satisfactorily between their main offices in Philadelphia,

satisfactorily between their main offices in Philadelphia, Redding, and Potterille, upon a line which also has a nutries of ediless using the Morse system.

On Treesly, thoog lines, the Automatic Teigraph Company's wire between Weishington and Philadelphia was connected a Philadelphia to one of the P., II, and T. Vedgraph Company's wires between Philadelphia and Potterlis, and the Preddent's meange, containing about 11,600 united, and direct the Preddent's meange, containing about 11,600 united, and direct the Preddent's meange, containing about 11,600 united. From Weshington to Pottsville, Pa., by the automatic system; and the time occupied in its transmission upon a single line between the points named was 84 minutes, being an average of 887 words per minute. It could, however, have been sent in les ss; words per minute. It could, however, mave been sent to test time, as no effort was made at the time to obtain speed. The mossage was perforated at Washington by young ladles, who raged about 25 words per minute. The character exen averaged about 20 weres per initial varieties and recorded on the chemical paper at Pottsville were plain and distinct, and easily read by three operators, who translated the characters to three copylate, each averaging about 35

orus a minute. Unon the same day, the President's message was transmit Upon the same day, the President's message was training ted over the lines of the Western Union Telegraph Com-pany direct from Washington to Pottsville, by the Morze system; and according to a statement published in the Potts-rial Samelars, its occupied the time of four wires each for nearly two hours and a half.

nearly two hours and a half.

Had the message been sent by the Morse system upon a single wire between the points named, it would have taken it 10 hours, as there was considerable escape on the wires hat day, owing to a damp and drizzling rain

The Boe Keeper's Convention. The third annual convention of the North American Boo recently held at Louisville, Ky., was very

Electro-Recording Barometer H. C. Russell, of Sydney Observatory, New South Wales, de-

II. C. Rossell, of Springer Observatory, New Scalit Wales, de-criticals in Justice as less creat improvement. The hormoscient table is an ordinary glass one, 0.98 in disasteet, and is fixed limity is an ordinary glass one, 0.98 in disasteet, and is fixed in limit for, and comment for low branch and in large of the left side of the cross, which allows it perfectly free metion up and down, the control of the large of the left side of the cross, which allows it perfectly free metion up and down, and in the large of the the cistern arm, and the other, after possing round the mag-net, to the inclined plane. As soon, then, as there two parts ch, the electro-magnet brings down the brass frame, and with it the pen, on to the paper which at once begins to mark, and continues to do so until the motion of the clock mark, and continues to do so until the motion of the clock draws the inclined plane from the cistern arm; and so breaks the contact; the pen remains off the paper until, by the mo-tion of the clock, the inclined plane is brought to touch the projecting cistern arm, when the pen at once begins to write. As the barometer, when the pressure increases, must draw the mercury for its increased hight from the floating cistern, the cistern becomes lighter, and rises with it, and the smallcat motion may be made sensible by altering the inclination of the moving inclined plane. The accuracy of the motion of this plane is secured by making it work on two fine steel points—the same motion, in fact, as that given to the entire of a dividing engine. The clatern floats in a reservoir of mercury. The pen is a siphon pen, supplied with thin ordi-nary writing ink.

A Selentific Appropria A professor's wife, who occupied herself sometimes with husband in making casts of it

112.811.—ELECTRO-MAINETTO MOTEO, HORTY M. PR. STREET, N. S., natigate to Mailton E. Freek, May York (My data—A box framo with equivalent in the particle for the many manufacture of the contraction of the particle for the manufacture of the contraction of the particle for the manufacture of the man

THE AUGUSTAN PROBLEM OF THE ORDER AND THE OR

when the presentation of the first daws, the Breton instru-ment will sever for description. It consists of a gardundra emiletic, supported on a tipod vertically, in frame of which two predictions of quals length. The productions for the present the presentation of the present the present formula whose sizes are no seen. The limer has an artic of the present the presentation of the district of the size of the present case on another. An electromagnet at each and of the dismoster of the sensition server is both another the laminator of the sensition server is both Each suspect in heritostat position, receipt reserve the musals of the price consistence of the presentation of the connected with a transp, use mise who has he passed the second 100 feet further on for the respective magnetic title. Across each frame, the wire a such respective magnetic and battery is passed to and fro, at such distance as will issure its being broken by the projectile in passing through. The battery circuits can be closed and broken at will, by and 100 feet farther on in the path of the projec-

neans of a disjunctor.

To test the adjustment of the instrument, the circuits are To test the adjustmens of the postument, we create and closed, and the pendulums brought into contact with their re-spective magnets, where they remain in a horizontal posi-tion. The disjunctor is made to break both circuits simulassective magnets, were targy resum in a netroscore particle. The dejincents is made passive, and the possibilities that the passive p

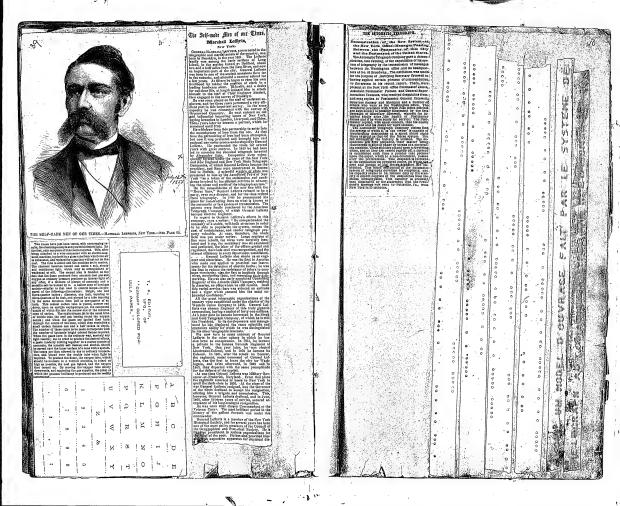
cond target, breaks it, and the corr ponding endulum are similarly affected. In this case ilums, not beginning their oscillations together, do not set at the zero point of the arc, but some distance to one meet at the zero point of the arc, but some distance to one side of fit, where the mark 'indicate; the number of degrees from zero at which they passed. The time of oscillation of the pondulum-being known, the short arc enables us to find the time between the fall of the first and second pendulum, the time between the fall of the first and second spout laim, which equals the firm occupied by the projection in passing from the fligs to the recool frame or target; and the space of the first t

equired.

Prisminent among these stands the instrument invented The highly solved of a populous in a fact of motion of the part of starting of starting problem in the starting of starting of starting problem in the starting of by Captain Schultz of the French artillery, and known as the "Schultz chronoscope," It consists of a bed p which is mounted a cylinder with clockwork and a se It consists of a bed plate on

No. 113-176.—Urgrament Transmert. Edward A. Galskan, Browkley. The minds herein section for year A. Galskan, Browkley. The minds herein section or the minds herein section or each attention produced by the section of the produced by the section of the section o

PATRICE. O. 4.166.—PRINTING TRANSLEY. Thomas A. Edison, Nowark, N. J., assigner, by meson assignments, to the Gold and Stock Telegraph Company. Pulsat No. 91,827, dated June 22, 1893. Friedrich Compiler, Fattern St. 09:17, dated June 25, 1997. (Chini - L. A fortill change, in combination with an abortic-nagent such the type wheel, as a self-forth, whereby the current subsected through chief in sparts, as secretally to the printing of the carrier, and the compiler to proper to a secretally to the printing of the carrier, and the compiler to the compiler to the printing of the carrier of the compiler to the compiler to the printing of the effection sparts to great the analysis of the compiler to effective sparts to great the analysis of the compiler to the conference of the compiler to the compiler to the printing of the spart and the compiler to provide out the subsection of the com-piler to the compiler to the compiler to the compiler to the compiler to the spart and the compiler to position of the sub-printing compiler of the spart and the compiler to position of the sub-printing compiler of the spart and the compiler to position of the sub-printing compiler of the comp A potential kee, perimental satisfait in conclusions with an accommodate of the same effective successful programment of the same effective successful programment of the same effective successful programment of the same pr



Some and the Advances on Congress Friction Electricity.

Tun word electricity has been applied to a series of mysterious phenomena which manifest themselves under certain conditions; these conditions are of different kinds, and it is only the want of knowledge under which many persons labor in regard to these conditions that indoese them to seedle many the somena they observe to this agency. It has, inde become a custom among a certain class of persons be always ready with an explanation for any mysterious agency; they will tell you with the utmost confidence that it is electricity. When, however, one in terrogates them in regard to their knowledge of this agency, it is invariably found that they do not know

any thing about it. The word is derived from the name of amber which is in Greek "electron," as this was the substance by which first the phenomena in question were discovered. years before our ora, was already acquainted with the property possessed by amber and substances of attracting small

light bedies after being rabbed; but this rem an isolated faca science was which he treat

hand, the mos

on the others # laws by the unlearned, 2 5 In order

fundamented will describe to those w salves, if th

what the electricity developed by rubbing glar differs from the electricity of wax, in attracting bedies which are repelled by the wax; but that two bodies, both charged by the glass electricity, will also repel

Fig. 1.—Distribution of Electric Charge on Comin 6. That the electricity of wax will attract bodies charged with the electricity of glass.

From these general truths the following laws have

There are two kinds of electricity; one, developed by rubbing wax, lac, resin, etc., has been called resin-

self by crackling police and a 3. That this condition called electricity may be communicated by contact; and that when two hodies are thus charged, in place of attracting, they repel one

NUMBER 101.-(Concluded.).

stokes until increasary to form a satury, and cover state over case on use on use piece is the visual fraction of the parts and the year or platfarm, in making leathers, and then would by the line toward the centre from the same of the definite of the web here to merce of it until it is discovered to the contraction of the definite of the web are to merce of it until it is discovered to the contraction of the definite of the web are to merce of it until it is discovered to the contraction of the definite of the same of the definite of the web are to merce of it until it is discovered to the same of the definite of the same of the definite of the same of the definite of the same of stain the action. At a first view it is only

se chemical actions are constantly changing, that by immersing the plates for a few hours completed in less than two years, on the hydrogen will be decomposing nilete in a week solution of per-chierate of iron, it Proposite have been made by S. T. Arm. seld at one time, and altrons acid at another will be restored to its action.

bodies is zine, and its relation to the apparatus is such that it is called the out zinc, and that any diminution of the sur- regard to its few shillity or possibility & Some

abundance of sulphurle acid in the years!, in diameter has been invented. ver strip. What has been said about the con- perfectly insulated, in a cord of the size propo-

instrument:—Silver is generally used for this The lines should be in the hunds of the go Enginement—writer in growering used nor this: This more assounce to in two names of the oper-jors, has other metals will answer to overlow favouncied of the two counties where it is train-ly the phragens, and of all the metals, iren per-lavages the propage of allow most engined in the form of the counties of the count who designs the propage of allow most engined in the form of the counties of the counties of the special form of antifice was replaced. It is a subject to pay the rates. In this way means a subject to the counties of th

What was said above about iron will apply station as extince. At a max howe are very station as extended to the conditions when the conditions which for all this graded mentals, as they all forms of the conditions when the condi it we will first recite these canditions and ide, and a surface of exide will not evolve the where the bed was rocky and movem. By the there will are fitting 19790 combination and large of the special can are the large of "St. John's self-determining variation by the continued action of the instrument by parlame of keeping all ignoble notal away company," the wire could be half down on an

tion of the benss or copper fixtures is exposed the deviation from the true geographical med-In the first number we defined a battery as to the acid of the battery, it will be discolved, diam, without reference to observations, so that apparatus, consisting of a compound fluid, and be precipitated as sorted or oxide on the all difficulty in leasing and fluiding the wire on Personant, venuesting or a Composume among home or presentant as mostle or extile out the personance in recomming non-mining tons were conditioned through the condition of the list case of accident, in provided for by this, minate one element of the compound final, and greatest annoyances the operator has to bear the most important invention of this invention the other hady the "other element. Intensity arises from the metals, as from tee, with age. Ships using this compass will save time rea defined as the measure of the force of the which the xine is contaminated; as the zine and ensure positive certainty in the subty and notices as two measure or the more or the amount plate is discoved, these impurities are gradus regularity of their trips. of the chrmical action. All declinations of sily precipitated on the silver and hinder its. Efforts will be made to induce the carly acof the cortinees follows. An unknowness of the president of the cortine is a generally then of the government in this important matcustly-re, in other words, of the amount and thought that the platinization of Surce's butcco of the chemical action. As the intensiwhich results from any one chemical force, es, is not the case, as it lesis for years; but, guarantees for faithful performance of outnot, always the same; the intensity of Smee's achie will not remove the impurities from the and all that remains is for the government to althory is constant—but in Grore's battery surfaces after years of trouble, I discovered appropriate that sinn and the work will be

For the Scientific American. Sub-Marine Telegroph under the Atlantic. Since the successful attempt to compact cooler, but zinc is by far the most of Eugland and France, by means of a sub-ma- government to lay down the Atlantic Line, place. As the zine is the electromotor, it been the theme of conversation in various alerelatent that our battery cannot week with cles, and many suge opinions expressed in

With a person of the control of the First, we will examine it in Smee's would be less than 3,000,000 of dollars.

strong, Req., of this city, to construct a line of Sub-marine Telegraph between England and Ireland on the plan shove alleded to. Should he be successful in this, he will seen make proposals in due form to capitalists and to the

Now Method of Telegraphing.

field in limited that we will be further of the control of the con (effected at 41) therefore, if we want the has, better existing, count may no arrange on any arrange on the plan of the Morse instrument, and is interested by source, in general part is sourced, we man the plan of the Morse instrument, and is interested in the plan of the Morse instrum State overy theory express ascera recenting with sendable the quantity. As the water can die, stead of fevel-splate of an heat, as in this sendable the quantity of the subject. As rowed and legendons plan feet and the contract of the subject. As rowed and legendons plan feet states of the subject of the subject. The subject of the sub

absolution of subjunite soid in the wout, lie dissorter has been invasion.

The usuan for forming the nined interaction the content flaw in the co patiens it should note exceed one-sixti, for and fifteen feet, until deep water is found, the register. The forming of the rained letters ex residence as superal flower excepted benevation, for point amore every most tropy water as coming two required. The comming to one causes everythe call comes, as the water approaches the point of natures, when there will be just sufficient weight to quently be effected at any suitable distance by the ordinary. the lattery or whether it has all combined [there is nother the regions of their or the regions of the regions of their or the leading of the region to the other or the leading of the regions of their or the leading of the regions of their or the leading of the regions detend above, is thrust into the liquid; the decide behavior (seventidand, commencing catcher and holds the massage at Chicago until the wire being operator judges of the amount of soil by the about 100 miles above Halifax, and a line of your may be used, and thus from fresh tenterior repeats the operates junges or an amount or seem or the state this length consisting of four separate wires messages from New York on to California at least ten the

ver step. What has one some some some some some some some property as an accommand to prove country, see any accommand to prove country, see any accommand to prove country the sure of the step of th

seeenges arriving at a central effice—as, for example, the Western Union in New York-may be delivered there on the tape by each distant manipulation of other offices, instantant easly, and all these may be transmitted on to their destitions by turning a wheel, whereas now an expert must fo watd each message to which the wires beyond New Yor were not opened

ing hydrogen, and this form is resultly given be the interesting strends in the result of the hydrogen, but for the strength of the hydrogen, but for the strength of the hydrogen would have been strength or the hydrogen would be supported by the hydrogen would be a some strength or the hydrogen would be supported by the hydrogen

which we may more clearly see the cause of from the sold of the battery; although we may exact line, as this admirable instrument tells he delication, and know what is requisite use platinum or silver, if ever so small a por-

the intensity will be ever varying. In all useful batteries, one of the decomp Sective and economical, and therefore we will the Telegraph, the great question of uniting measure that will reguerate Ireland. of consider the substitution of any thing in Bugiand, or rather Ireland and America, has

is not a surface of from, but a surface of exide | toms, and 2 fast stamens as tenders. of iron, and the acid, and water will seen and time required to lay down the wire when every up the fron plate. This explains how it is thing was on heard and the vessels at their As it is now to be premiered that it is underod what is necessary to form a battery, and cover that icen can be used in the place of sil- would be from 12 to 20 days only, as the slipe

H. L. STUART, Civil Engineer. British Potent Lame The inventors provide a thin and narrow conducting tape

1800's may a certain quantity of the support of the graphing and recording. The transmission of measurement of the support of

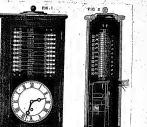
control of the variety so and the batteries for zinc is interal strength would be almost equal to from New York; which the ordinary automatic repeater exceed do acting simultaneously, as it must, with the New York mani-Again, to ray nothing of the automatic repeaters, all th

XIOSISTANIO TELL TARK GOOS.

This is an apparatus for checking is watchman on his bounds, Fig. 1s a front cleaving, and Fig. 2 a vertical specton. A vertical revolving drum is placed in the center spill in drives by front content paid in drives by frontend interesting of the center spill in drives by frontend interesting like, into an amount of the content of the center spill in drives by frontend interesting like, into an amount of the center spill in the center spill of the center of t to be visited. Each vertical division has a marker neturated by an electro-magnet placed on either side of the cylinder. The wires are led through the back of the clock to the different stations, at each of which is a knob which must be pressed at the time of the visit. A circuit is thus completed, the time of the visit. A circult is thus completed, the armature of the electro-suspects attracted, and a vibrating motion imparted to the marker, the polast of visits impresses a dot on the paper brough the medium of a piece of carbonized rib-toom. It, says Suplemering, the vantisman falls to visit any point on time, the cylinder in the interval will be carried on, or let as it hask space will appear on the steets at these prove the meglectical properties, and the steet in the province of the visits. The degic is above by remaining the contract of the visits. The clock is placed beyond the reach of the watch-man, and inspection in the morning reveals the fact as to whether he has been negligent or punc-

M. Newberk Invention Transch.
Mr. Editors, of the city, a still catabolism bit still control in New York C A Newark Invention Tested.

tual in his rounds.

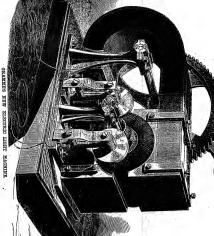


REGISTERING TELL-TALE CLOCK

New Magneto-Meetric Machine, We have hed an Epotrasily of varieties. We have hed as a Epotrasily of varieties and a magnitude-electric macking, which appears in consistent or produced an interest of the produced and the pr

security of the property of th machine in question there were three armatures, one of which was sufficient to excite all the

magnets by means of the induced current, as above described, and provide a powerful current, which gave an excellent light in one of Mr. Ludd's lamps. The power required to drive the nachine was about 3½ or 4 hore.



JOURNAL OF PRACTICAL

INFORMATION, ART,

CHEMISTRY,

AND MANUFACTURE

Superindent of the state of the PORTABLE MEDICAL BATTERIES, OT PROPERSON GROUDS W. HALSE, OF THE MEDICAL COLLEGE OF GROUDS.

The want of a small sized galvanic buttery which can be rasily carried about in the hand, and which at the same time compy carried about it too neme, and were as the comp time it to be discussed thus, in a curiain garrante ferme, is of sufficient power to fulfill all the requirements of the three are 100 rays or currents of different intenditing given growing more urgent, as the medical application of electrigrowing more argum, as the man apparatus now employed, whether it be that of Grove, Bussen, Daniell, Smoo. structed in this country by Kidder, Drescher, Chester or the Galvano-Paradic Manufacturing Company of New York, has always the same inherent difficulty, when of sufficient power, of being too weighty and bulky to answer the redirements of easy portability, however excellent such anny be for office use or inhoratory purposes.

The Familie instruments, for giving induced shocks by helices, have arrived at a high degree of excellence within the past few years, and may be considered as sufficiently answering all the requirements of portability and service, whether of the specialist or the general practition

The principal difficulty herstofers existing in the contion of a small and sufficiently powerful galvanic battery has been in the well known law that quantity is proportional to the extent of active surface of each element, while inionsity, energy, or power of penetrating and overconting rences is proportional to the number of elements can Thus it would appear that a battery of sufficient intensity to effectively pass its current through the human body must have many elements; and these must be of considerable size to give out the necessary quantity for all purposes of medical treatment,

o we have Siemens' modification of Daniell's buttery for sufficient quantity and intensity.

This has been greatly to the detriment of the emplo This ass been greatly to the deriment of the employment of the galranic current, continuous or interrupted, for the larger number of cases for electric treatment require becausily to be acted upon at the reddence of a high staticity, and, not at the office of the physician, where the becomery but letters are available. This high value of the galranic carried. and its superiority to the Faradic in many cases are now established, to say nothing of those instances where it is in-

Such being the condition of things, the question arises as lem I have devoted much time during the past year, and I will here state the principles which appear to evolve from my experiments.

Third-Test only the rays or currents having the higher consistes pass through resistances Fourth-That an equal number of rays, or an equal amount

Galvanie Electricity without Chemical Action. At a recent meeting of the Physical Society, Mr. Fleming lowed his new battery, in which the metallic contact of dissimilar metals is entirely avoided. The arrangement salats of thirty-six test tubes of dilute mittle sold, and the same number of tubes of sodium pentasulphide, all well inplated, alternating with one another. But strips of alternate lend and copper connect the neighboring tubes; by which means the terminals are of similar metal, and a current of sufficient intensity to violently affect a quantity galvanometer obtained. The potential increases, as in the ordinary guivense arrangement, with the number of class employed, until sixty cells showed an electro-motive force exceeding that of the same number of Daniell's elements. In this new battery the acid lead is positive to copper, while in the sulphide it is negative. Mr. Floming further while as the sulphude it is negative. Mr. Floming further one wages not necessary cupyored, indeed one which not belowed how, by using the slage finds nittle acid, and locally gives out an electro-motive force of equal quantity but single metal from, a similar battery could be conserveded. [of spinylogic_integrity.] provided one half of each iron strip was rendered passive. This is an important discovery; for it seems to revive the theory that chemical action is not necessary in a galvanic apparatus to produce electricity. At all events it is of suf-ficient interest to merit the sound inquiry into its principles

ch physicists seem likely to make.

of electricity, of sufficiently high intensity to be able to over come a certain resistance, can be generated either by a large battery or by a smaller one having a greater number of elemonte

out by each element, of which only the ray of highest in tensity, A, is able to pass through or overcome a given resistance; then only The part of the total amount of electricity is available for such purpose. Let it also be assumed seemens, Stöbrer or others, or their modifications as conthat there is another similar series composed of elements of one quarter the size of the former. Then, instead of the full amount, A, only one fourth of A, supplied by this new series, will be able to overcome the given resistance; but the series may be increased by such an addition of new elements that the next lower rays, B, C, and D, may be raised to a sufficient the next sower maps, is, o, sacc D, may be caused to a selectance, intensity to be able also to pars through the given resistance. Now each my is senumed to be equal in quantity with any other ray, hence \(\frac{1}{2}(A+B+C+D)=A\). Then the new

series of amalier elements supplies exactly the same amount of electricity as the series of larger elements after parsing through the resistance. The intensities, however, of A, B, and C, in the new series, have each been raised evidently above that of A in the first series; so the series of small elements has not only supplied an equal quantity of electricity under the conditions, but also electricity of higher tension than that of the series of larger elements.

It is known to physicists that the exact measure for the quantity (motive force) of galvanic electricity generated in any case is the amount of chemical action which takes place; and this may be represented by several methods, by the total amount of zinc dissolved, by the amount of water decomposed by the current, by the amounts of metals deposited from solu-So we have Summers measurement of 60 glass jars from 5 to 6 etc. Let us now apply this to the construction of a small increas in diagnostic vy or to incomes usign, communing use many gaverage theory, intring a commencement number of semail con-sides, Copper descension. Height, forth the papersent nature of imments "which are on the price on a further possing the currents of the cop, at less been unumed, impressionable to construct a through a great resistance like that of the imment oddy, the rame amount or quantity of electricity as that supplied by a

much larger battery having a less number of large elements. Thus, for example, take 20 colls or elements of a medium sized Grove's battery in fair action, and pass as much of the general current through the body as can be endured without much discomfort, by holding wetted metal electrodes in the hands and interposing the resistance of a short column or stratum of water in the circuit; interpose also a delicate galvanometer, and mark the number of degrees of permanen deflection of the needle, which will settle, we will suppose pt 40°. Repeat the experiment, retaining the some condi-tions carefully, with the 33 cells of a modified Stöhrer's bat-Soft in long the continuous at sample, we therefore the sample of the positivity of overcoming the appeared difficulties in the positivity of overcoming the appeared difficulties in the positivity of overcoming the appeared difficulties in the positivity of overcoming the sample of the positivity of a small, simple, readily positive butter plans; the needle will satisface to a sheet of . Perform the plays; the needle will settle also at about 40°. Perform the frame experiment under the faame conditions with the small portable battery presently to be described; the needle will segale to dedicted permanently to 40°. In each one of the foregoing cases, after passing the constant current through my experiments.

First—That the electricity given out by any slagbe element. the body, muss it to pass into water allghity sedulated, by little—That the body muss it to pass into water allghity sedulated, by la composed of a number of anys or currents of different in-means at two plaintsms wires (electrolos) passed through a cost and summersen to two name extens in even if of large size and the evolved gases in a quill glass tabe drawn out to a Second—next is sauge or non-new to a to a new to be to reverse games as a quas game saus orang out to a fin nengotic action, has but a very small-number of such rays capillarily closed extremity; the volume of the gasen will be found the same in each experiment. Perform similar experifound the rame in each experiment. Perform similar experi-ments with the three batteries by passing the respective currents through about one helf inch stratum or rain watch without passing through the body; the comparative results will remain substantially the same. It, in the above caree, the currents be passed through albumen (white of egg) or freely drawn blood, the amount of cosgulation will be found about the same for each battery.

From the above experiments, it may be fairly inferred that the three batteries evolved the same amount of galvanimotive force; hence either might be substituted for the other in medical use, since in all such applications of electricity the current must pass through some portion of the human body, thus encountering great resistance.

The total amount of zine surfaces (both surfaces included exposed to the neitne surraces (some surraces includes) exposed to the neitne of the exciting liquids in each of the three batteries may be approximatively stated to be 1,000 fequare inches in the Grove, 200 square inches in the Stehrer, salvaneometer obtained. The potential increases, as in the land 40 require inches in the surface in the Stohrer, and specific in the small battery, the number of cells in the small battery, the number of colls being 20, 31, and 49, respectively.

Thus it would appear that a small portable battery has been Constructed just as effective for all medical purposes as those of the largest size usually employed, indeed one which not

I am convinced that the large Slemens battery of 60 glars rs is no exception to the above conclusion, although ave only been partially able to make a comparison for the ant of a proper battery. In this, the action of the exciting quid is comparatively feeble, the distance between the sin and copper plates being some three, four, or more inches; while in the portable battery in question, the exciting liquid ots energetically, and the distance between the opposed sine and platinum plates is but 3-16 of an inch. The notive force of any galvanic arrangement is a function, not only of the size and number of the plates, of the kinds of metal opposed and of their distances apart, but also of the

meray of action of the exciting liquid.

The office and hospital batteries, however, will probably never be replaced by any pertable apparatus, however equal or even superior it may be in power, for the simple reason that the since and liquid will require much more frequent re newal in the latter; for equal amounts of motive force, equal amounts of zine must be dissolved and liquid consumed The specialist and general practitioner will necessarily re-

quire both kinds of batteries; but in any case where but a wood or pasieboard dipped into melted parellin, gotting stands on conterter, our in any case water out a wood or patenbard dipped into metica paramu, gorning a slagic battery is employed by a palyadelan, the portable one coating of the latter of about 1-16 of an inch around the would appear to have much the advantage. This one, have walked called cell. ing 49 elements actively excited, has such high intensity that answers admirably for giving the interrupted current, is answers admirably for giving the interrupted current, comparison on account of its well known power, bring; which hence is able to penetrate to the deepest muscles and sufficient probably for all medical purposes; Stobrer's modi-

A more particular description of this battery; as con-structed by myself and used daily for the past ten months, will now by given. The metal strips used are sinc and platinum as before stated; but carbon could be employed in place of the latter, if the cells be made somewhat larger. The zincs are 2½ inches long, ‡ inch broad and ‡ inch thick; the platinum strips are 2 inches long, ‡ inch broad (crimped to one half inch) and of thin fell; both metals are immersed to a depth of 14 to 14 inches when in full action, which is rarely required, generally from 1 to 1 inch immersion being all that is necessary.

The strips of zinc and platinum are united by copper stripe in the shape of the letter U inverted, the platinum being soldered to one extremity, and the other being so made as to lap partially around the end of the zinc which is retained in place by the spring in the copper laps. These copper strips are ‡ inch broad, and 1‡ inches long, made in the form of the letter T before being bent, the top of the T forming the lans to retain the zine. The zine and platinum strips, being thus united, are respectively passed through corresponding rectangular holes made in a square piece of hard rubber (wood might answer), 6½ inches in dimensions by # inch thick; this plate has a red in its center by which the whole is readily raised or lowered, so as to give the proper immer-sion, into a square trough of hard rubber forming 40 separate colls; these cells are \$ inch square inside, and 22 inche deep. Thus the battery, with the metal strips immersed occupies a space only 04 inches square by 25 inches deep For service, however, the whole is enclosed in a thin hox 61 inches square inside by the same hight, one at both onds and slipping easily down over and enclosing the trough, to which it is attached by pine. There is a still strip of hard rubber (or metal) loosely placed across the upper part of the box, having a hole in its center; through this, the red sus-taining the hard rubber plate with the attached motals masses. moving freely up and down, and held by a set scrow at any required death of immersion of the zine and platinus couples. The zine strips are readily replaced from the top of the rubber plate by simply pushing out, downwards, the worn out one by means of the new one which takes its place : the zince, being well amalgamated, form a perfect connection with the copper strips without the aid of a screw. platinum strips of course never require renewal, and are nover disturbed after once being placed in position. The ex-citing liquid is the same as that used in Stöhrer's battery, being a solution of blehromate of petash in dilute sulphurie and the box lifted clear from it; then, the trough being placed in a dish, the liquid is poured over it in a large stre ing all the cells at once, the excess passing over into the dish. The trough is then raised up on one side to a considerable angle to permit a portion of the linuid to flow out from the colls; and being wiped with a cloth, it is placed on a table and the box containing the metal strips is slipped over it, and the battery is ready for use; no more time is taken than would be required to fill a single large cell. This facility in oplacing the worn out sines and renowing the excited liquid is indispensable for the practical working of small batteries; otherwise they are seen thrown aside, from giving too much trouble when frequently used. In a daily use of this battery for one half hour for interrupted correct, the zines have lasted two months and the liquid over two weeks without re-

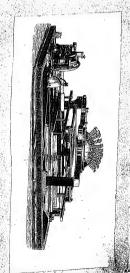
sewal. It is important that the liquid should not fill the

cells, so as to wet their top surfaces when the couples are fully immersed, and that there should be no cracks in the cell partitions; otherwise the high intensity will establish nower and waste of materials; for the same reason, the hard bher plate must not be wetted, which can only happen from

By a simple arrangement, say number of cells from 1 to 49 can be brought into action; a note changer and current interrunter being added makes the battery complete. The entire weight of the hattery is about the same as that of a good Faradic instrument, such for example as No. 4 of the Salvano-Faradio Company's manufacture; and it is equally as portable

In case sine of the required thickness cannot be had for the string, they are readily made from the common thin sheet zine, by cutting slips i an inch bread and 13 inches long and doubling up the two ends compactly so as to form a total of six thicknesses; such strips when amalgamated become a olid maks. The trough reight be made of vulcanized rubber, gutta percha, or even, for a temporary purpose, of thin

Grove's battery of 20 cells is referred to as a unit of tissues; and the battery is, moreover, useful to supply the fied battery of 33 cells, as perhaps the best, taken all in all, for office use that has ever been constructed.



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THE TOM THUMB TELEGRAPH.

Intact or featene upon the mind. Peneday used to say, with (ought to mace themselves familiar. These little devices emphasis, beth is penjit, but it was no sufficient to real may also be used for office tolographing as well as for bound about magnets and electricity. He devined them to make this muse and numeeomen. Any indistilgent had may put up the mace, and the pentils. For extracting the pentils, and thus become, step make the destrict matchines, and thus become, step make the pentils. For extracting the pentils, and the pentils. For extracting the makers as a few positives of expensions of with the whole subject. As a means to such ends, we take especial pleasure in calling the attention of our readers to the Tom Thumb Tolegraph, It affords the means of illustrating the phenomena of electricity, at a cost so small as to be within reach of almost everybody.

The Tem Thumb Telegraph consists of an electro-magnet This Toka Annua Lengraph, and Toka Annua Lengraph, and Toka Annua Lengraph, and Toka Annua Lengraph Lengraph key, concluding armature, a galvanic battery, tolograph key, concluding trees, and chemicals, all complete for working within, with accelled infections for use, and cranible for \$6 \text{Trailed ly packed, and sent to all parts of the world, on receipt of the price, by the makers, F. C. Beach & Co., 260 Broadway,

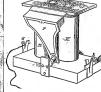
corner Warren street, New York. One of these little instruments is now in operation upon our table as we write. We had some curiosity to see what could be done with it, and will here give some of the results: First, as to the battery. It is composed of two small plates, one of lead, one of sinc, the latter covered with paper as a septum, both plates set in a common saucer, in water in which a few grains of sulphate of copper are dis-solved. This little battery we found, on trial, to run for two days and a half. The water solution needs to be then renewed, which requires, perhaps, a couple of minutes to do.



THE TON THUMB TELEGRAPH, FIG. L.

Next, as to the instrument. It makes a first rate click signal, and is, we think, just as useful for learning the ma-nipulation of the Morse alphabet, and for sending and receiving messages by sound, as any of the larger and more ex-

In addition to its office as a signal telegraph, this little de-vice may be used for experimenting in many ways, and with it all the principal phenomena connected with electricity and magnetism may be exhibited. Its employment for telegraphing is illustrated in Fig. 1. In Fig. 2 the armsture is removed and a slip of glass, with iron filings, placed on the poles of the magnet, K. When the key is pressed, and the glass gently tapped, the filings assume the beautiful posi-tions of the magnetic curres. Removing the glass, needles



for easy solf-instruction in one of the most interesting There is nothing equal to experiment in impressing the branches of science, with which overybody, old or young, facts of science upon the mind. Faraday used to ray, with ought to make themselves familiar. These little devices

THE MINIATURE TELEGRAPH.

For about a year past we have had in use here, in the office of the SCIENTIFIC AMERICAN, a very simple and con-venient little electrical device, termed as above, the Miniature Telegraph, the invention of Mr. Lawrence Duerden,



THE MINIATURE PELEGRAPH FIG. 1

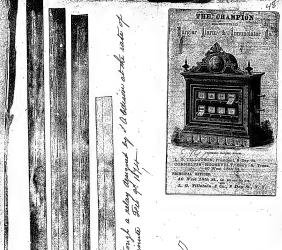
As used in our office, these instruments are placed upon the desks in the various departments of our establishment, and from them wires extend to the desks of the managers, on which buttons are fixed, which connect with the wires. When the manager wishes to communicate with any particular person on the premises, he touches the button corres-ponding to the wire leading to the bell where the individual is at work. The touch sounds the bell, and, as a variety of signals may be sent, one bell may serve to signalize different persons who are within its licaring. It is surprising how many steps the use of this little contrivance saves, and how greatly it facilitates the transaction of our office business. Previous to its introduction, it was necessary for us to employ messengers, who did little else than run from one part of the premises to another, consuming time and making This miniature telegraph saves all such

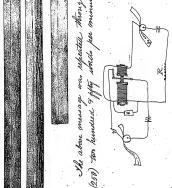


THE MINIATURE TELEGRAPH. PIG. 2.

troubles, and enables the manager, without leaving his reat, to communicate instantly with all the principal persons omployed in the concern. (See Fig. 2.) We have seven of these little instruments in use in our office, which serve us in signalizing a large number of persons. For factories, the first state of the state of teres; and usefulness for a Christmas gift for young per- we use in our office, which runs six or sight mouths without renswal.

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INFORMANT TEST OF THE SYSTEM BETWEEN NEW YORK AND WASHINGTON-INTEREST. ING REPORT OF HERSIGNAL STATEMENT OF THE STATEMENT OF

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seein-jobe operation and clerks. A similar toom was performed promises and voltacle. As similar toom was performed promises and volta the air control of the property of the clerk when were removed on the control of which was been as the control of works at concernal, was thus also yet with the control of works at concernal, was thus also yet with the control of works at concernal, was thus also yet when the control of works at control of which was the control of the against the system.

Correspondence of the Journal of Commerce Manuscrow, April 3.

A number of gunlismen have inspected a machine at the Signal, Bureau, which General Meyer and all who have seen it say will, if the tests are success-

undo have seen it say will, if the loats are success, make a throws revocation in desgraphy. It is a sublique teleparaty, it is not successful to Mercuit Casily, as a profited teleparaty, increased by Mercuit Casily, and the sublimation of t The object of the invention is to enable a number

- The object of the invention is to easile a number of instruments to be operated simultaneously on a single wire, in either or both directions, and at different stations along the line, without conflict each instrument to do as much work as the Morce key, or other instrument in common use. Mr. Gally proposes: to multiply the exceptity of existing lines by making each wire do the work of a number of wires. It has long born known to telegraphics that a tele-graphic wire is capable of transmitting scores of clearity pulsations where only one is now sent, for observie pulsations where only one is mor east, for the reason task lumma movements cannot keep pace-with the flow of the electricity. The "submath?" instrument, nor in 'use, has satisfactority demonstrated that the shifty of shormless recorders to receive electric impuises a shared unlighted, but the proparation of the punched elips of paper before instantialistic enceessing detected from the dispatch

strands that the shifty of shouldn's boundaries to be reported to the shifty of shouldn's proper before transmission accounting disease. It is much as disease the same particular of the properties of the proper

To the Editor of the Scientific American: I send you herewith a sketch of a scientific toy, which i

have recently constructed and placed on a bracket in front of the desk in my ongine room. The main left of the engine is 30 inches in width, and about 120 feet in length, and gine is so increas in water, and moont 120 100; in roug..., and runs from south to north, at an angle of about 45°, and with a velocity of 2,000 feet per minute; it is highly electrical.



The idea occurred to me that the electricity so developed might be made use of for mechanical or other purposes; and might be made use of for mechanical or other purposes; and having zeen as operating of what is called an electrical having zeen as operating of what is called an electrical solid. As a vala, about 0 leicher in length ty 1 leiches in colla-cidament, the bottom of which is lensted in a cavity in the bracket, B. In the center of the cortx is leastered the spec and bracket, B. In the center of the cortx is leastered the spec and bracket, White consists of the contract of the contract of the cortx inches, on which rests the wheels, O which consists of two places of copper wire, 128 inch in diameter and 7 inches in places of copper wire, 128 inch in diameter and 7 inches in length, placed at right angles to each other; their contern are fixtured and soldered together, and half an inch of the end of each arm is bent at a right angle, all in the same direction, and filled to a point. D is a copper wire, one eighth inch in diameter, one end of which resist against the needle, the other running in front of and about 6 inches distance from the last and recognition of the contraction of the contraction. the belt, and terminating in 5 or 6 points, 2 inches long, prolecting toward it.

On connecting the conducting wire with the netdle, my wheel immediately started off at a speed of 100 turns in 50 seconds. I seen secretained that, by placing a good metallic conductor beneath the wheel and making an earth connec-tion, I could add materially to its speed. Accordingly I placed a tion, I could add materially to its speed. Accordingly I placed a copper coil, S., ji index in diameter, one lack below the wheel, cassacting it with the gas pips, which accelerated its speed to 145 turns in 50 seconds. Soon my wheel began to grate even to an angle of 20°. This amonged and puzzled me. I overstundly found that, by adding another coil, P., one inch above the wheel, and connecting it with the earth, I not only restored its equilibrium, but also becreased it weekely to 178 instead like equilibrium, but also becreased its velocity to 178

When the air is dry and frosty, I have had it running as fast as 280 turns per minute, and the ozone given off by the wheel is apparent to the senses at a distance of several feet. It also acts as a barometer, indicating (by increasing or dimainshing its speed) atmospheric changes several hours in advance. It is especially lively on the approach and during the provalence of a northeast snow storm; but with the wind

providence of a northesis snow storm; but with the wind anywhere from east to south, it will scarcely more at all. The apparatus can be casily constructed by any person of ordinary inclingeous, and it makes a very interesting scien-tific apparatus. It can as well be located in the counting room cor, filto as in the captine room. 328 Delancy street, New York city. EDWIN LILAGH.

STANDARD TELEGRAPH INSTRUMENTS



ESPECIALLY DESIGNED FOR THE USE OF

Students of Telegraphy, and Amateurs, AND FOR THE OPERATION OF

PRIVATE TELEGRAPH LINES.

We manufacture two styles of these instruments, either of which,

(with the accompanying battery,) constitutes A COMPLETE OUTFIT FOR A TELEGRAPH OFFICE.

TELEGRAPHIC PROGRESS IN 1873.

trine cable has been extended along the eastern const of South America, uniting Para, Pernambuco, Babia. and Rio. The inauguration of this line was colebrated in the presence of the Emperor of Brazil, on the 28d of last December. In a short time, the wire will be prolonged to Montevideo, and then both American continents, from Canada Monitovideo, and then both American continents from Canada to the south of Brazil, will be in telegraphic connection with Europe. A fourth cable was successfully laid between England and the United States during the month of July. In Africa, owing to the Ashantee war undertaken by Great Britain, the telegraph has been latroduced to a limited experiam, the telegraph has been latroduced to a limited ex-tent. In Australia, considerable progress has been made in erecting lines between Queensland and the western portion of the continent. It is proposed to connect New Zerland and Australia with a double cable, also extending from Queensland to India.

The use of the duplex system has become wide both in Rogland and in our own country. We note a curious inven-Englana and its our own county. The most a state at a little by Mr. Viquier, of Shanghai, China, by which dispatches are sent not only in the Chinese inaguage but printed in its intricate characters. The automatic plan in the United States is proving quite successful, and in public tests has successful and in public tests has

States is proving quite successful, and in public tests has accomplished some remarkable feats in rapid telegraphing. With regard to butterles, in spite of the improvements in those of Grove, Bunsen, Lecknobé, May, Davy, and others, it, seems that we as yet have none that is absolutely constant, though it may be that future modifications of the secondary butterless of Blands will have been considered to the secondary that the secondary the secondary that the secondary the secondary that the secondary that the secondary the secondary that the secon

hatteries of Planté will lead to such a result.
Sir Richard Glass, Sir Francis Romalds, and Augusto Do la Rive, all prominent in the history of telegraphy, have died during the past year.

EDISON'S INDUCTORIUM.

DIRECTIONS FOR CHARGING BATTERY.

DIRECTIONS FOR CHARGING BATTERY.

Pince the sine inside the gleed cut, Pince the ungined proves pot inside the sine, and fill both within a quarter of an obest in the provise cut, and the same in the small cut, provide and the battery arrow for the same in the small cut, provide in the same in the small cut, provide the small cut, provide the small cut, and the small cut, when the is seally for use. The bettery will make be encouved, and a fresh stupply of the small cut, and the smal

PRICES.

Price of complete Machine, sent C. O. D. by express, \$0.00 Liberal discount to Apents. When sold in parts, the prices are, for Battery 75 cents; Box \$1.00; Handles and Wire 50 cents; Instrument \$0.75. Bichromate of Poinsh and Sulphuric Acid can be purchased at any Druggist. EDISON & MURRAY,

10 & 12 Ward Street, Newark, N. J.

E-1685 Scrap book,

WONDERS OF TELEGRAPHY, The Latest Improvement in Telegraphy-

Sunday Mercury

DR. G. M. STERNBERG'S ELECTROMAGNETIC REGULATOR

DAMPERS AND VALVES.



SECURED LY

LETTER'S PATENT. No. 100,462, No. 105,272 and No. 105,273.

The figure represents the Apparatus applied to the damage of a hot of funnee, and the Regulating Theoreous care hisping over the month in the pitting rate above. The connecting rives and a latter cap they can be connecting the interests principle of the connecting rives and a latter cap they can be about. They can be shown. They can be shown before the damage, but it may, of course, be funced in any corner or closed that is convertible,

TELEGRAPH DEVELOPMENTS.

"HONOR TO WHOM HONOR IS DUE"-MR. LITTLE ASSERTS HIS CLADIS OVER MR. EDISON.

Fo the Editor of the Tribune.

Sin: In regard to Mr. Edison and his so-Site. In expect to Mr. Different and this solvable instances are present as a to Constitute. The expect of the solvable present as a to Constitute. The expect of the solvable present as the constitute and the expect of the exp about 350 wortes per immere on a la aggeration, 250 worde per minute !

In justice to myself, Casmost one why there should be all this heating about, when it is well known to those all this heating about, when it is well known to those the should be about the state of the beautiful this period. ing to turn over for the benefit

Passaje Olly, N. J., Jan. 15, 1876

TO THE PUBLIC.

TEST

AUTOMATIC SYSTEM OF TELEGRAPHY

NEW YORK AND WASHINGTON. 4 2, 27 10 2, 4 10 22 22 22 22

OFFICE OF THE AUTOMATIC TELEGRAPH Co.,

The President of the Western Union Company having set forth, in a published letter to the Postmaster General, under date of December 27, 1873, concerning the Automatic or first system:

ist. That the Automatic system is slower than the Morse;

2d. That it requires five times as many operators; ad. That consequently it is more expensive ;

The Automatic Company determined to test the accuracy of these statements by a public demonstration over their line of one wire between Washington and New York, The trial took place on the evening of the 27th inst.

The truit took pince on the evening in the arm rest.

By invitation, the electrician of the W. U. Co., Mr. Geo. B. Prescott, was present in New York, and Mr. Whitney, By mytiation, the electrician of the W. H. Co. Mr. Ger. H. Poscoti, was present in New York, and Mr. Whitney, manager of the W. C. offler, Washington, D. C., was at that cent. In solidition, there were present in the New York office, Hon. Hiram Barney, Gen. J. H. Wilson, H. G. Pearson, Auddent Potentiaries and Mr. Hillenbann, also of the Potential Conference of the Conference and Mr. Hillenbann, also of the New York office, Hon. office Department, New York, J. G. Smith, General Superintendent of the Franklin Telegraph Co., and several others; Once Department, New 1005, 5, 5, 00000, October 100000 on the Post Office Department, and Cupt, Howgate, U. S. Signal Corps, and others.

and in the Washington office, Mr. Lines, of the Peut Office Department, and Lup. Howgate, U. S. Signal Corps, and others. The matter transmitted was the Profedent's her message, with the Paulida protocol attached, numbering 11,130 words, it having been selected in consequence of the declaration that it manuals not were distinct wires by the Western worms; it naving oven selected in consequence or the decaration that its transmission Union Co., on December 2, 1873, in 70 minutes, was a feat imparableled in telegraphy. Dainer Co., on Devember 2, 1873, in 70 minutes, was a feat impandituded in telegraphy.

The work commerced in Washington at 3.30, 174, ¹⁷To dominant use copied complete in New York at 6.48, p.s., eccupying in all but 60 minutes, as against 70 minutes, the time communed by the W. C. Co. The arcenge time was 505

The Automatic used but one stire; the W. U. Co. used eight,

The Automatic used ten perforators, thirteen copyists, and two Morse operators, as against sixteen expert Morse The Automatic uses ten perforators, nurrien copying, and two Joose operators, as against marcon expensional operators by the W. U.; the average pay of perforators and copylets being \$40 per month. All of which details are

in it are accompanying report.

In the demonstrations made, let it be borne in mind that on the one side the work was done by the ablest experts in the work, and company with press of experience. On the others ship, except the Morse operators necessary to man-ipolate the wire, our force had not that experience which is requisite for experience. The people are interested only in knowing whether the capacity and economy of the Automatic system are to the people are measures only as among wheneve too expansy may accoming at two continuous experiences insure to their benefit. The following comparison of our charges with the tariff of the Western Union Co. is our reply:

AUTOMATIC TARIFF.

New York, Philadelphia, Baltimore, Washington, Uniform charge, 25 cents for 20 words,

WESTERN UNION TARIFF.

And these advantages will be extended relatively as we extend our circuits.

GEO. HARRINGTON. * Three minutes" difference in time of commencing, as reported in New York and Washington, but whole time occupied the same.



Office of the Automatic Telegraph Co., 80 Broadway, New York, February Sth. 1874.

To the Hon. Jno. A. J. CRESWELL,

Six: In a communication addressed to the Postmaster General, hearing date the 6th December last, and published in the daily journals on the 27th, the President of the Mercard Union Telegraph Company used the following language in relation to the Automatic System of Telegraphy;

"11 would require 34 perfectators, 48 couplets, and at least three more to attend the transmitting and receiving instruments and these perforations, nathing a force of 5 (which he subsequently enlarged to 80) to accomplish in an hour the work performed with 16 operations of the contract of the contrac

These statements are clear, concise and unqualified, and, emanating from the President of the W. U. Co., are invested with an authority which otherwise would not attach to them.

If they can be steatistical; that is, if the sexamption is correct that the well-known defects and defectives or the English or Whenstein automatic system, so clearly and suscinctly set forth by him, are applicable to the American Automatic system, I shall be forced to admit that the law "four years of constant trial, during which large sums of among have been expended in practical experiments," with which he so unkindly reproaches us, and to which we plong girthy, have been expended in the particular set.

He admits that the transmission, by the American system, has been increased from comparatively few words per indust to 12000 words, in 20 minutes, over a single size. Is the learn possible that "6 on years of this and large sums of money" may have developed other improvements whereby the fatal defect of five Automatic operators to one Mosce may have been overcome, and eyes have gones of ar as to justify the a-section that, with a like number of equality slid loops are the sum of
It would be a waste of words to meet assertion merely by counter-assertion. The only effectual mode of testing the question was by a public demonstration in presence of disinterested and unimposchable witnesses, who should note the time and number of operators engaged in the work.

The transmission of the President's last annual message by the Western Union, in 80 minutes, as reported by some of their employees—in 70 minutes, as amounted in the Tribinae on the morning after the performances—and in 69 minutes, average time, was personally a feat unparalleled in the annuls of telegraphy," which he declared to be impossible of performance by the Auttomitie system, with loss than 75 or 80 operators.

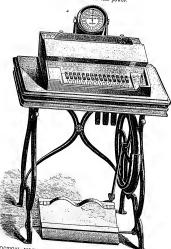
To accomplish this masterpiece the Western Union used the Morse system, 8 wires and 16 of their most accomplished operators.

ANDERS For Manufacturers, Coal and Lumber Dealers, Mining and Gas Companies; Railroad and Police Telegraphs, &c., &c. PATENTED IN THE UNITED STATES AND EUROPE. ANY PERSON CAN WORK THEM! NO ACID OR CHEMICAL BATTERY USED! The electrical currents are generated by induction from permanent amagnets, and as the messages are spelled out on the keys, they are printed on a strip of paper by each instrument on the line. The printing is tools employ as any person can select the letters on the keys. For reliability, rapidity, economy, and convenience of operating, combined, they are superior to any other printing telegraph instruments yet produced, either in gauspe or the United States. OFFICE OF THE BOYNTON PACKING CO. 192 SOUTH MARKET ST., BOSTON, JAN. 4, 1874. TELEGRAPH OFFICE OF THE BOSTON AND ALBANY RAIL ROAD,
BOSTON, JANUARY 6, 1874. Marses. With & Andrews. Society Marsett Dr., Boston, eds., v., serv., danders, danders. Magnet Perlant, Technyal, Internancial Conference of the Artificial Society Perlant, Technyal, Internancial Conference and washington. Terp are repetables, may deep even for each for a present to operate. We do not looking to recommend all who may have been for the present of t Welch di Andrea: Alexans, World, of Andrea: (anthems Andrea Magneto Printing Telegraph Instruments, which have been in use on our line for the last ten mouths, have proved to be very reliable and rapid, and we would recommend them to any parties who want goad Printing Telegraph Instruments.

ANDERS'

Magneto Alphabetical Dial Telegraph Instruments,

Are the best Dial Instruments ever invented. Having more powerful Generators than any orders, they pro-Are the best Just instruments ever inventes. Inving more powerful Generators from any others, they pro-duce stronger destrical currents, and will therefore work on longer lines and with larger dials and indivitors. they stronger electrical currents, has but increme work on longer mes may wan arger cons and manuscrist. The reading of messages is much easier than with the smaller dials and indicators used on other instruments The renting of messages is much closer man with the smaller mass and automors used on once instruments of this kind. For the same reason they are more relatable in bad weather, or when the state of the atmos-



THE CITY OF BOSTON USES THESE INSTRUMENTS ON ITS POLICE TELEGRAPH.

Edwam H. Savang, Esq., Chief of Police, in his annual report made in January, 1874, says: We have now Anders' Magneto Bid Machines, which are arranged with a simple keyboard and a circular alphabetical "We have now Andres' Magneto Bial Machines, which are arranged with a simple keyboard and a circular alphabetical fluctuation and new law on the oscillation and make the central offices, made and the control of the product with The state, and each of the value, and each of the state, and each of the central offices, made and the control of the state, and each of the state, and each of the central office the product with The state, and each office and the force stations is connected with specific stated office for an independent of the state of t

t≈ Each Instrument has a Signal Bell to call the person who is to receive the message. ⇒:

E. B. WELCH & GEO. L. ANDERS, . MANUFACTUR" 30 Hanover Street, Boston, Mass.

MALOCHRA

THE GOLD AND STOCK TELEGRAPH

of the System-Working of the Machines Bank and Private Lines. There is a second

IFIRST ARTICLE. The little instrument known as the Gold and Stock Telegraph, which keeps up such an incossent clatter in our banks, brokers' offices, hotels and other public places, is an object of woulder to most people, and but few are as qualited with its working or its present im portance in a commercial point of view. The principal office of the company is in the build-ing of the Adams Express Company, and from that point all of the city lines radiate. There thro about five hundred distinct wires conter-ing at the head office, and when looking at the map of the routes prepared by the engineers of the company New York city appears onv-ered with a vast network of wires, which have no relation whatever to the lines owned by the Western Union and other companies.

THE HOUTES. The male trunk line, as it is termed, start-

from the rear of No. 61 Breadway, from which follows the line of Greenwich to the Battery; thomes it goes up Water. Pent and Chorry streets to Jackson street, and thence one brauch of about forty wires passes under the water in the form of heavy cables to Brooklyn. On the Brooklyn sidthere are lines extending to the City Hall, Greenwood Cometery, Woodbaven, Calvary Cemetery and Hunter's Point or Long Liland

is again divided, twenty. Eve of the wires follow-ing the line of that theroughfare to the Grand Central Depot, and another branch taking the ilno of the First avenue. On the west side of the city the wires are formed into cables, and fellow the line of West street to Canal street. where they connect with the Seventh avenue pole line, ending at Fifty-ninth street. In ad-dition to those pole lines there are a multitude of wires hild over the housetops where it would be impossible to set poles in the streets. This is particularly the case on Broadway. THE PHINTING INSTRUMENTS.

The Bank and Private Line department is obably one of the most interesting and cale. prononcy one of the most interesting and valuable parts of this system of telegraphy. The instrument wood is Gray's Printing Instrument, and first used in Chicago. It appears to be of very simple construction, and yet does its work in the most thorough manner. Like the stock-reporting instruments its working parts are protected by a glass shade, but unlike those noisy little machines it has a circular keyboard representing the letters of the alkeyboard representing the batters of the al-phabet. The company has gone to great ex-pense to recome perfect and, at the same time, the perfect and, at the same time, the perfect and the company of the per-pending mobiles, all of which were called in call replaced with the instruments now with the instruments of the perfect limplicity was the main object sought by the company, as any man, romans or child ator after fifteen mls utes' practice. In souding a message the operator first presses a fin-ger on a blank key, which storts the instrument; then the words may be printed as slow or as fast as the will of the person may distate. In sending, in on the person many due to be polar with the next is attack, and as on to the oud of the chapter. It does not matter have fast or slow the instrument is worked, the sentences come out perfect in all respects. The batteries are provided for those instru-ments by the company. They will last about live months, and require no particular atten during that time.

BANK LINES

There are now fourteen banks having lastru-ments, each of which has a separate line, and one. When one bank dosires to communiare used for covered, and the state of the communi-one. When one bank desires to communi-cate with a distant neighbor, its operator sig-ter of the communication of the commun wise, with fourteen banks in the system, each wice, with fourteen banks in the system, each institution would-require fourteen distinct lines. A system similar to that enjoyed by the banks in now organizing for the insurance companies. Lines are to be built connecting the main office with the headquarters of the fire department, police department and in-surance pairel, for information in regard to fires and losses, and this will be transmitted to the various companies. The company lines will also be made to connect, as in the bank arrangement, for consultation.

PRIVATE LINES.

The private lines, of which there are a great The private lines, of which there are a great unmber, have no connection with the min colloo whatever. They are erested, however, and maintained by the company for the use and convenience of individuals, merchants and manufacturing corporations. A merchant doing business or having a control office on the large and the company many have a manufactory at Henter's Point, and to be in immediate community. ter's Point, and to be in immediate communi-cation with it occasionally is a matter of condiderable importance. These private lines are created for just each pur-poses, and, with Gray's printing instra-ment, a morbant or his agent seased in his Broadway office may faints own unulcation with his factory at Hunter's Point or electricary. The corrections of this system is very great, and it is rapidly extending.

Most of the private lines are laid over the
housetops, and the wires are insulated, or have a rubber coating, so that when tangled there is no interruption of communication. Many of the leading stock and gold operators have grivate lines extending from their dwellings to their brokers' offices in Wall street or else-where. By this means they are in constant communication with the stock board, and can give their orders and receive returns without danger of interruption. During the recent punic in Wall street several of the largest operators in stocks and gold are said to have given their orders and conducted the bulk of their business through the medium of this sys-tem of private telegraph lines.

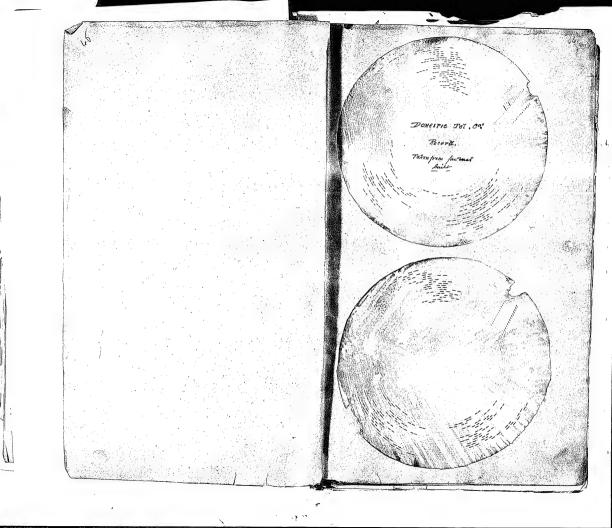
tom of pelvate telegraph lines.

Of the merchanist and manufacturers.

Meiers Tiffany & Co., of Union square have a private line connecting their store with the tanameter principle of the transfectory in Prince street. The Meers.

Jaffary, Lord & Taylon, Browsel & Co., Oa-hart, Whitford & Co., and many others also make use of the system. The Department of Public Parks has lines communicating with Or author 1 from his since communicating with Central Paris and other points. Mr. Augustin Daly has lines extending to his three theatres and connecting with, his privar readence in West Twenty-fifth street; and the Mesers. Knibblesch have a line extending from their store in Fulton street to their chemical works in Bashwich. in Bushwick.

PRIVATE LINE BATTERIES. The batteries for the several departments are all different. The private line batteries



Photographic Engraving. The subjects suitable for printing blocks, of the kind now

to be described, are those known as line and dot subject. it that is, pen and ink sketches, line drawings, engravings, and such like, to the exclusion of objects in pure graduated tint, like a silver print from a negative of a natural subject having graduation of tint.

A plate of glass is coated with a solution of beeswax in A plate of gloss is coated with a solution of becaux; in other, the relative proportions of the two being about half an onnee of wax to ten of other. This leaves a very thin coating of wax upon the plate, which is still further attenuated by rubbing with a cloth. The object of this waxing is to prevent a too close adherion of the gelatin coating, to be next applied.

To prepare the sonsitive surface, golatin is stoeped in wa-ter for half an hour or upwards until it has become swellen from the absorption of water; most of the superfluous or unabsorbed water is now poured off, and the restel con-taining the golatin is placed in hot water, or otherwise subjected to heat, by which the gelatin immediately becomes liquefied. To this is added sufficient of a saturated solution of bickromate of potash to render it of an orange color, yet not sufficient to cause the salt to crystallize out and show it self upon the surface of a glass plate coated with the mix-The film is dried and then removed from the glass, which is permitted to be done by the agency of the wax substratum. It is now ready for exposure.

Suppose, now, that a reproduction of an engraving or piece of ordinary print or sheet of music be the subject that is to be produced; a transparency—not a negative—of this subject must have been obtained and superimposed upon the side of the gelatin pellicie next to the glass plate. After exposure to light for a quarter of an hour-or more or less, according to the light and the quality of the negative-this gelatin film is present into contact with any handy flat aur-face, such as glass or metal, care being taken that the surface that was next the negative be placed outside. It is now sponged coplously with, or immersed in, cold water, by which a considerable amount of rolled is obtained, the parts corresponding with the black of the original print or drawing being seen standing in high relief, while the whites are sunk. This, it will be seen, supplies the conditions for a surface block to print in connection with type, all that is now wanted being the conversion of the soft golatin into hard unyielding

metal. The gelatin relief or mold obtained in the manner described is, first of all, made surface-dry by means of bibulous paper, and is then lightly dusted over with finely pulverized plumbage or bronze powder. A cast from this surface is then taken by means of molten beeswax, which, when cold, readily parts company with the gelatin relief, owing to the intervening sprinkling of plumbage or bronze. This wax cast is then sent to the electrotyper, who, in a few hours aferwards, will deliver a metallic cast, mounted upon wood and ready for working in the printing press. This process originated with Mr. Thomas West, of London.—British Journal of Photography.

Iron Electrotypes A brief item on this subject appeared in a former issue of the Journes, to which we may now add the additional declaration that M. Klein, a Russian chemist, has succeeded in obtaining very satisfactory results from a series of

experiments in this direction. The process followed by him is described as follows: The bath employed consists of a concentrated solution of sulphate of iron and amuonia, and the lattery of four Meidinger cells. For an anode, an iron plate is used, with a surface about eight times that of the cathode; and connecting this with a copper plate, a perfect coating of iron ed. On leaving the bath, the iron, it is said, is as hard as tempored steel, and very brittle. When heated, however, to a cherry red, it is said to become malleable, and may then be engraved as castly as saft steal,—Journal of the Franklin Institute.

[Our readers will find a full account of M. Klein's process, above alluded to, for the Production of Iron electrotypes, in the Scr. was patented in this country by M. Klein, of St. Petersburgh, was patented in this country by M. Sceni, in c. 2 Carrier, Russia, September 29, 1868. The Hon. Caselus M. Clay, then United States Minister to Russia, brought home some examples of the new process, consisting of iron electrotype plates for printing, being copies of engraved copper plates. These examples were very perfect. They were for some time on exhibition in this office and were noticed in this paper November 27, 1869, a full account of the process b-ing then also given.—Ens.]

The Page Patent Litigation.

There seems to be a probability that the validity of the Page patent will be thoroughly and legally tested. We have before mentioned in The Telegrapher the fact that suits had been commenced in the United States Courts against the Manhattan Quotation Company and Mr. Charles T. Chester, of this city, for infringement of this patent, and they are to be contested to the end, and its validity, as affecting telegraph instruments and apparatus, either established or de

Our renders are fully aware of our opinion in this matter, and we have shown, as we think, conclusively, that Professor Page was not the original inventor of the devices for which a patent has been granted to him, and that, in fact, the patent is an outrage on the public, who have paid largely for these same devices to other patenters, whose patents have expired and become public property. So well convinced was the Western Union Company of the invalidity of the patent that, when first offered to them for purchase, after an investigation by experts and eminent patent lawyers, it was rejected. It was sently purchased by that company for good and sufficient reasons, no doubt, not con-nected with its validity, and has, for the last three years, been held in terrorem over the telegraph interests of the country not connected with the Western Union-no serious attempt having heretofore been made to enforce it.

It should, by all means, be disposed of at as early a day as possible. If properly contested, that it can over be maintained legally we regard as an impossibility.

The resources of the Western Union Company will enable them to press the matter, and the contest will be protracted and expensive. All who are interested in defeating it should at once join hands with the defendants and make common cause with them. sharing the expenses as they will the benefit of success. The relirend companies are especially and vitally interested in this matter: for if the Page patent be once established. they are at the mercy of the Western Union Telegraph Company, so far as their tele graph facilities are concerned, and will be

. * **

made to pay roundly for the exemption from such control during the last few years, since the Morse patents expired. They should be wise in time, and cooperate with those who are engaged in supporting the independence of the telegraphs of the country.—The Telegrapher. 6 ķ 1479 133 Coman li: Li. 1 Call ļķ. 13 1 l/s B T

Edison's Inductor fum

A roweful electrical induction differ giving indext. Constructed upon now principle, theful for medical purposes and someticest. Facked in seet within the with Bittermann of poists better,

PRICE SIX DOLLARS.
EDISON & HURRAY.

No. 10 and 12 Weed street, Swenzie, N. J.

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76.763.—Some W. Hyary, An. Albreys, N. Y.

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77.10 L.—Jonx A. McCLELLAND, Leulsville, Ky.—Juderiel for Beated Patternut for other proposes.—Juderiel for Leader Patternut for other processes.—Juderiel with The Confidence in Abole pure used, coloring studies, and a sensi quantity of proposes make. The attention of the coloring processes, and worked into a solid matterial for dealing the coloring of the coloring processes. The arthride is to be the many processes.—The arthride is to be the many processes and anterial set are dealers of the coloring and working material, who materials we agreed to excited.

Humors of Telegraphy.

The exceepe of the telegraph deposits an only on the good mile of the operators, which law, and the good mile of the operators, which law, a collection of the good mile of the operators, which law, a chilly of very refer to extend the select of the segart is bacilitied to large mean and we have delict of the segart is bacilitied to large mean and we have delict a subgraph, define because the interest cought himself—seven-deposits, of the beautiful the country of the company of the company of the company of the company of the country of the

Act nature propores that and, briefle, to place to the office along interment, comparative to the office a place interment. Comparative to the office a place to the place and the hand of the operator areno, as it as the souther of the operator areno, as that the souther of the operator areno, as that the souther of the operator areno, as that the souther of the place and the hand of the operator areno, as that the souther of the operator areno, as the place to the operator areno, as the place to the operator areno, as the place that the operator are not appeared to the opera

Executerry,-Aluminum Betteries,-Some time ago the foreign papers published the report that a phys icist in Europe (we do not remember the name) had substituted aluminum metal for platinum in the Grove battery. This we believe, as we did the same our selves twelve years ago; but the next statement that the substitution answered the purpose and gave n strong electric current, we declare false, as we found that no electricity at all was obtained. dently this myout did not try it; but being misled by the fact that aluminum withstood the action of strong nitric acid as well as platinum, and being a good conductor of electricity, he conceived the notion that it would answer the purpose in question, published the account of an imaginary experiment, a liberty very common in olden times, and in which it appears that some people of the present day still include Always remembering the trite saying, "The enting of the pudding is the proof thereof," we always curvy every idea practically out, and in this way have learned more by our failures than by our successes. So we learned by the experiment in question that aluminum notwithstanding it is a good conductor of electricity, has not the power to interchange electricities with the mitric neid, that it can not decompose this neid in the battery as platinum does effectively. Finally, the cause of all this daymed on our mind; according to the electro-chemical teries of the elementary substances first established by Berzelius, the electro positive zine must he mated in the buttery with a substance which is electro acoutive in relation to zinc, such as conner or ellver: platinum is better-carbon still better, being nearer to the electro negative end of the electro chemirol series. Now in regard to aluminum, it belongs to the cartley metals, next in order to the alkalies, which constitute the electro positive end of the series. Being thus naturally much more electro positive than the zine, it can not possibly, in regard to zine, fulfill the functions of an electry security substance as earlies on platinum does so very effectively. As a result of the failure, we took our aluminum battery of twelve elements down, into which we had transformed a Grove battery, and substituting the old platinums, it was interesting to notice the conducting qualities of the aluminum, notwithstanding its perfect neutrality as an element of the battery. When a platinum plate was dropped into the nitric acid without removing the minum, the electric current was at once started from the moment this platinum plate touched the aluminum. The latter is thus able to take the electricity from the platinum, but not from the nitric seid, for which purpase the intervention of platinum, carbon or their electro negative equivalents are essential.

Parsacs,-The problem of changing motive power into light was first solved by Clark's magnetic electric machine, described and illustrated in our February number, page 36. For this purpose the ends of the conducting wires of which the coils consist are pointed with coke, and the two coke points brought close to gether, when a series of luminous sparks will be seen to pass between them. The size and luminosity of these sparks may be increased by simply increasing the size of the machine, and within late years they have been made so large as to require a steam engine to rotate them. The first of this class was imported from England some twenty years ago, exhibited in New York, and attempts made to Induce Mr. Collins who at that time ran a line of steamers between New York and Liverpool-to place them on board his yessels as a substitute for the ordinary lamps in the headlights. The performance of this first large machine. however, was not quite satisfactory; the light produced was not proportional to the size of the machiand the power required to drive it, the machine consisting of some 300 horseshoe steel magnets and an equal number of coils, and the steam-engine rotating the colls was of about 10 horse-power. The curse of this deficiency in effect was due firstly to inherent defects of the machine, the result of imperfect knowledge of the laws of inductive electricity possessed by its projector; and secondly, by the ignorance of all knowledge of electricity by Mr. Shepard, the party in charge of the machine. We had later, in 1867, another exhibi-tion of a similar machine at the lighthouse on the Battery, New York. It was of better construction, but, unfortunately, the party in charge blundered in place ing the light in the correct position in regard to the focus of the lenses, throwing most of his light into the sky in place of on the surface of the waters of the bay, and it again gave no satisfaction. We are happy to announce that now a regular manufactory has been established for those lights in Paris. They are driven by a 24 horse-power engine, and cost 7,000 france, or about \$1,500. The economy of these nuchines is best illustrated by the fact that the light produced by one of them, at the expense of a few pounds of coal, is equivalent to that of about 300 burners consuming 25 remarks of oil. Of course such propositios can only be realized when used on a large scale, and are effectively employed on some European coast lights. The propo-sition to place them on board sailing ships, and work them by means of a propeller serew turning round in the water as the ship advances, could only be applicable when the ship goes faster than it is desired, and has to be retarded. The propeller series working such a machine would of course effect a retardation equivalent to a backward action of 24 horse-power, and effect

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mu organized on "Crimon Manacturing Company," locating their works at 15 and 15 Meekanie strent, Newark, N. J. "The "Col-laboid Harness Trimmolaz Company" is lo-cated in the same building, but is an entirey distinct concern, the former furnishing he crude material, which is made up by the latter into nontingule rings and the various trimmings used on harness.

trimmings used on names. Our attention has recently been drawn to the question of the inflammability of Celiuloid by the following pringraph in the N. Y. Journal of Vision cee, which was attentionable provinced on postal cards, by certain intersted parties, and ranked very generally throughout this country and Engenerally throughout this country and En

generally throughout this country and Edition.

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systeties sia comparativa par inspectations. Feeding nation that our metrophilas contemporary had been imposed into no hysometric three particular and proposed into the property of the intention of the property of the manufacturing interests of our eity, we determined upon making a horrowing investigation of control of the property
A small quantity of Chilescold advange was handed in to which we applied a much, and the property of the prope

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Persons interested cannot fail to notice that Prepara shipirated cannot fall to notice blast verystaliar raidings due patielle managamen to the Wistern Union amounts) is carefully supersonal to the Western Union amounts) is carefully supersonal to the descendently free papers. The important toll of Senate system's part of the preparation of the Senate system's part of the senate system's part of Time Datas' (Caratter, is briefly mentioned in a Time Datas' (Caratter, is briefly mentioned in the Associated Prize dependent Parts are not comments upon it in our parts of the Senate system's parts of the Senate system's comments again it in experience of the Senate which has the following:

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the alloys. In the first place it is not an attempt the above. In the first places it is not an attempt to almobile the press, but to free it. No nowas paper can now be started in Now York and get the telegraphic news. The bill of Senator For-sey does not preseribe what rates shall be charged; it simply prescribes that there shall be no discrimination in charges as between one tomers. That the ultimate effect of the passage of this measure will be to break do Association is true; but we should then leave Association is true; but we should then heve free trude in news. Nothing can be more pro-posterous than to say that because this nefarious monopoly is broken up the country would be "obedient to the dictates of the causes," The only "enueus" that anybody ever housel of war the meeting of the seven managers of the Assot elated Press. It is that "caucus" which Senn tor Borsey's bill proposes to break up; but with tor Horrey's bill proposes to never the best they with free frade in news and the ability to start news-papers we should have wint we have not had for many years past—a free press, giving ex-pression to all shades of popular opinion. In the meantime the Associated Press' news," will suppress everything relating to this most imp east measure. Free telegraphy and free trade in news will be fought for by THE DAMAS GRAPHIC alone of all the press in the country,

It seems that the Western Union Telegra. Forms lime on western Union reception.
Company has been in the market horrowing \$5,00,000. It is understood that the large expenditures on the new building in Broadway from \$100,000 more than the original estiroome coccos oniver than the original esti-mates), and probably the necessity of keeping up quarterly dividends in face of the treaten-dous rivalry to which the Western Holion is about to be subjected, as well as the taking up-of certain bonds falling due this year, in regard to the legality of which there is considerable doubt, are the cause of this new inelebtedness. It is strange how the confidence of the comnumity can be depended upon in the face of the constant borrowing of these great corpora-

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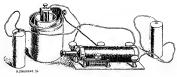


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with counterpoised stating frame. When loaded up to 1 gramme in each pan needle deviates 10 divisions on the scale for 1 milligramme; r1s part of a milligramme is therefore to be seen.	1 .	charge up to 8 lbs. in each pan. Sensible to 1 grain with its full charge. Pans nickel plated, 8 inches in diameter,	34 00		4.
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 6. 6. Analytical Balance, for a charge up to 100 grumnes in each pan, in French polished glass case. Frontsliding frame counterpoised, all bear- ing the control of the counterpoised. 	85 00	set of weights 100 carat piece and down to 1/2 carat. WEIGHTS.	45 00		
ings steel, sensible to 1 mgr. with its full charge, o. 7. Analytical Balance, for a charge up to 100 grummes in each pan, in fine French polished	38 50	IN PRENCH POLISHED BOXES LINED WITH VELVET, EVERY PIECE FITTED SEPARAVELY; BRASS WEIGHTS LACKERED; THE			a;
glass case, front sliding frame, counterpoised.		FRACTION OF THE GRAMME ARE PLAYINUM EXCEPT BELOW 20 MILLIORAMMES, WHICH ARE MADE OF ALUMINUM, Adjusted to the utmost Acuracy.			41
rangement for arrest of pans and beam, sensible to $\frac{1}{3^{tr}}$ milligramme with its full charge. Provided with apparatus for specific gravity, Rider and weighing tubes. Beam divided in $\frac{1}{4}$ parts of milligramme Pans $\frac{3}{4}$ hubbon in $\frac{1}{4}$ parts of milligrammes.		No. 1. Platinum gramme and down to p milligramme, No. 2. Ten gramme piece and down to p milligramme.	10 60 12 00		1.
grammes. Pans 2 ³ inches in diameter; 8. S. Same, for 200 grammes in each pan, sensible to $\frac{1}{2}$ milligramme with its full charge. Provided with arrest for pans, apparatus for specific gravity, Rider and weighing tubes. Beam divided in $\frac{1}{2}$ parts of milligrammes. Pans 2 fact in $\frac{1}{2}$	80 00	No. 3. Two twenty gramme piece and down to 1 mgr. 3 Riders, - No. 4. Fifty gramme piece and down to 1 milligramme	14 00		or
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500 grammes in each pau sensible to 7½ part of a milligramme with its full charge. Glass case as those before. All bearings agate planes. Pro- vided with arrest for pans and beam, apparatus for taking, specific gravity, flider and weighing tabes. Beam divided in ½ parts of milligrammes. Pans s inclose in diameter.		milligramme 3 Riders, - No. 8. Five kilo piece and down to 1 milligramme, -	28 00 70 00	3	
takes. Beam divided in J ₂ parts of milligrammes. Pans 4 inches in diameter. 11. Ditto, with adjustable shelf for supporting	132 00	No. 9. Ten grain piece and down to These grain, No. 10. One thousand grain piece and down to The grain. 3 Riders.	10 00		
Same for a charge up to 1000 grammes in each pan sensible to describe the milliogrammes with its full above.	145 00	Gramme and Grain Weights, No. 2.		¥.	
specific gravity, Rider, etc. Beam divided in 1'5 milligrammes, Pans 5 inches in diameter.	105 00	No. 11, Fifty gramme piece and down to 1 milligramme. No. 12. Hundred gramme piece and down to 1 centigramme,	0 00 5 50		
 Balance for scientific use, in glass case for a charge up to 10 kilos in each pan, sensible to 1 milligramme with that charge. Pan 9 inches in 	100 00	No. 13. Hundred gramme piece and down to 1 mgr No. 14. Five Hundred gramme piece and down to 1 gramme in mahogany block,	0 00	d E	
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polished box with drawer, provided with drop
lever, bows, movable pans, set serious and level.
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The American Pongnal of Phagmacy,

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COFFICE, 145 N. TENTH STREET.

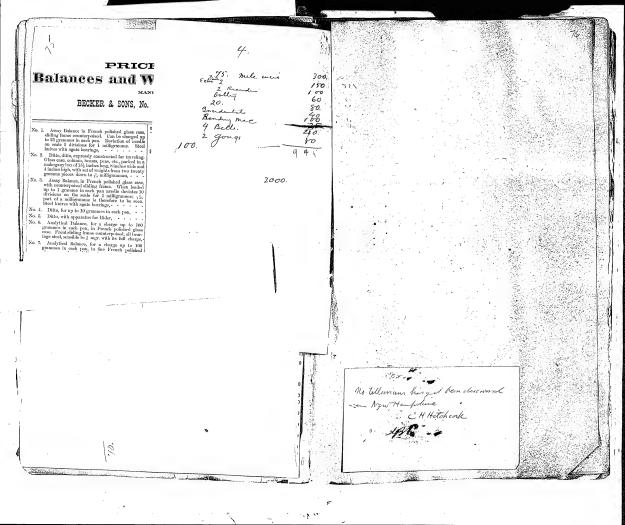
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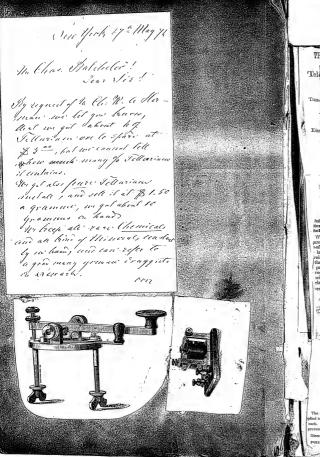


est cea Mr. Wildo's apparatus consists of two parts—an electroand an arrangement for regulating the light produced by the current, and projecting it upon distant objects. The electro-magnetic induction is founded upon a new and some-what paradoxical principle dis covered by Mr. Wilde-that magnets and electric currents indefinitely weak can produce assguets and currents of indefinite strength. The mathine consists of a circular or cylindrical framing of cast iron, round the interior of which are arranged a number of circtro magnets at apathetle Clocks Electro-Sympathetic Clocks.

Among the many objects of interest in the recent Art Ex equal angular distances from each other. A cast from disk is hibition of Dundee, perhaps few things excited more interest among the visitors than a clock worked by electricity in conmounted on a driving shaft runnection with a normal or master clock. Mesers, Ritchic and ning in bearings fitted to each side of the framing, and carries Sons, of Edinburgh, whose names are familiar in connection with the time-gun signal, introduced the system some time a number of armstures rovolv-ing before the electro marnets with the time-gen signal, introduced the system some time sizes, and this system the present clocks are intended to il-lustrate. The master clock, which is one merely of an or-dinary kind, requiring to be wound up periodicily, is placed on the platform of the large hall. The oscillations of its pendulum are used to complete consist be-tween the poles of a galvanic battery on the top of the clock case. There are two colls A slight charge of magnetism is imparted to the electro-magnets before the machine is used for the first time, by transmitting a mementary current through the wires surrounding the iron the wires surrounding the iron cores, or by touching their ex-tremities with the poles of a permanent magnet. This ini-tial charge is always retained by of the ordinary Daniell's sulphate of copper battery, one pole of each being placed in metallic connection with the gas pipe, and the other pole terminating in a slender the other pole terminating in a skender spring, sgainst which the pondulum red im-pluges; and while contact is thus obtained alternately with one or other spring, a cur-rent of positive or negative electricity is the electro-magnets, and is the basis of the augmentations of the electricity and magnetism produced by the rotations of the sent through the pendulum red, along the armatures. As the armatures insulated wire connected with it to the other end of the hall, where the sympathetic clock is placed. This differs from previous elecrevolve, they browns slightly magnetized in their passages between the poles of the electromagnets, generating weak our-rents in the insulated wires surtric clocks, and is provided with a magnetic tric clocks, and is provided with a magnetic pendulum, consisting of a wooden rod hav-ing a hollow coll or bobbin of insulated cop-per wire, the ends of which are attached to the auspension springs on which the pundu-lum is hung. A double bundle of permsrounding them. These currents are transmitted, by means of a commutator, through the wires surrounding the electro-magnets, so as to increase their magnetism until, by a series of nent magnets is fixed in the center of this actions and reactions of the armatures and electro-magnets bobbin, their similar poles being placed toactions and reactions of the armatures and electro-imagnots on each other, the magnotism is exalted to the highest de-gree of intensity, and the most powerful entrents of electri-city are produced. A small fraction of the current thus prowards each other. An attraction to and re-Wilde's Electric Light. The Courts, a Philide pushed, has highly been fitted with differ a produced. A round fraction of the correct temperature of the courts, a Philide selectric lights, which operates with great sensor that the court of the court produces the court of the c pulsion from the poles of the magnet hung in the center of the coll is caused by the passage of the currents of electricity through the wire coil
of the needulum, in which motion is thus produced and has tast no coar courte approved the aggress when a mire write aggress the automorphism to come to come man our more man out being discovered. In a bost at 2,000 yards distance from | 34 inches in length, and 21 inches in dismater. He weight maintained. The makers have constructed a simple but efmaintained. The makers have constructed a simple deter-fective escapement, or rather propelment, by which two arms are alternately raised by the pendulum out of action with the record wheel of the clockwork, and when released, is 11 cut. About four horse power is required to drive it at a velocity of 600 revolutions per when the record where of the clockwork, and when released, by mere force of gravity, push forward the wheel work and hands by sudden and decided stop, which are thus registered by the hands of the clock. There is such a pecuminute, and this driving power ny the hands of the clock. There is such a peculiarity in the construction of the pallots that no probable force can push forward the hands beyond the fixed stops, and no power less than the weight of the gravity area will drive the wheel work back is obtained on board the Comet from the fly wheel of the small engine that raises and lowers the eighteen tun gun and its plat-form. At this velocity the current will fure an iron wire 6 feet wards. arus. The difference between this system and that long and 0 03 inch in diameter, The difference between that you which works electric clocks hitherto in use is that the pussing currents of electricity are employed merely to maintain motion in the pendulum, which and will burn carbons half an inch square. In this machine the alternating current is used for is effected by a very weak battery; and from the great momentum, these currents may be intermit-ted or the wire cut for even two minutes at a time producing the light, past exporience in lighthouse illumination sed or the wire cat for even two minutes at a time sythion destrying the calculations of time shown by the sympathetic clock, which is dependent on the motion of the own pendalune, and not in any vary upon the power of the lattery. This allows the opportunity of causing several clocks attached to the same wire circuit to report their securacy by making each clock at a certain second to cut the wire connection during that second, and thus the flow of the currents is reversated. By means of a configuration of the contraction of the contracti baying proved it to be greatly superior to the direct or continuous current, since it has the important advantage of consuming the carbons equally, and thus althe carcons equatry, and thus ar-ways retains the luminous point in the focus of the optical apparatus used in connection with the machine, The alternating wire connection during that second, and thus two flow of the current is prevented. By means of a > gaivanometer placed in the wire these dropped s-conds are observed, and the correctness of the re-spective oldess guaranted. Whatever the num-ber of clocks placed on the same wire circuit, all the course act in union with the current also dispenses with commutators, and the destructive spark on the rubbing surfaces is also avoided when the light may be accidentally extinguished, or of them will, of course, act in unison with the when the circuit becomes broken beat of the normal or master clock .- The Engifrom any other cause. Copper wire conductors are laid from the machine nlong the Comet's deck, from the position of the machine over the engine room to the fore part of the versel, for the trans-mission of the electric current to the apparatus where the light is regulated and projected from. regulated also projected from.
All the atrangements on heard
the Comet, in this repect, have
been made to render the light
available for naval purposes,
which are a farmed best dates whother as a torpedo boat detecotherwise, and with this view a simple mechanical regu-

the Comet, and with the beam of light brought to bear upon the bat, the Times newspaper could be read with the great-

New Hours May 27 14 alate 🍕 issayer 🖁 🚜 hemist 🙈 Mr Chas Satchelor Dear Sir! Brichmond, Va. May 27 of Tillurium Ores I have or hand I specimens of Chas. Butchelor Pay: Nagyagite or foliated tillurium which I sell at 2.25 Deng Sig: 4 9.00 resp. The per centage of tellurium may varies from There is no State geologist for Kinginin, and I have also anhand 4 spens of Lylvanite consequently your letter Thus addrespeed has come to me as or graphic Tellurium, which I sell at \$ 900 - 4.00 - 6 00 The proper per von to receive it. \$ \$ 12.00 cesp. The percentage of Pellurium in the latter species is varies from # 45 to bo. all the species In Exply to your enguery I will thete That a numeral conare good minucological specimens and very a vary in lige tuining from 35 h 48 per cent of Tellurium has hen found from pieces of 2x3 & pieces of 3x5. The tellurium ores however at The Whitchall mine, Spotoylvania lo, at the moneroe mine form only a small percentage of the whole make of the Stafford le, no Tillusium mine, Fliwanna Co, in This stude, but Specimens. in what quantities The minical can be obtained I am unable to suy. Town best course would be to addeep letters to the Su-Vocy respectfully Jurintendants of The Expective mines, Perget That I canyours not you you more explicit information on The subject. Kuy Espectfully, L. Startmüller Am 4. Maylons Well (mouvere) of written to



THE PENNA. TELEGRAPHIC AGENCY.

GENERAL AGENTS FOR THE SALE OF

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full Size Railroad Sounder and Key: 1 Cell of "Callaud" Eery Complete; 1 Copy Illustrated Instruction Rook; Schage Chemicals, Office Wire, &c.

We send the above complete Tulegraph Office Outfit C. O. D. by perse (ready for shipmouth at 81.50 or 1 imoney to sent in induree by soffice money order on Philadelphia P. O., or registered latter, 8 for the persent of the persent of the persent of the persent of the integration of the persent of the persent of the persent of the integration of the persent of the persent of the persent least of practice there by having two outfits (the letter plan) we will send them for per cent less than for single statement, and the persent of the persent less than for single statement, and the persent of the persent less than the persent of the persent of the persent of the statement of the persent of

rered. Address all communications, &c., to the
PENNSYLVANIA TELEGRAPHIC AGENCY,

WAVERLY HEIGHTS, PENSA.

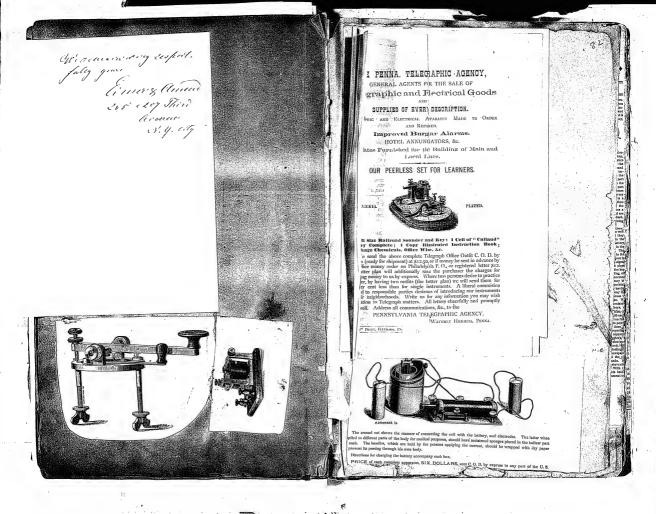
ren Print, Hatboro, Pa-



The second cut shows the manner of connecting the coil with the battery, and electrodes. The latter when spiled to different parts of the body for medical purposes, should have molitened proages placed in the hollow part cach. The handles, which are held by the persons applying the current, should be wrapped with dry paper persons in some body.

Directions for charging the lattery accompany each box.

PRICE of each complete apparatus, SIX DOLLARS, sent C. O. D. by express to any part of the U.



LOCKWOOD BATTERY.

PATENTED APRIL 8, 1873,

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FAR SUPERIOR TO ALL OTHERS

for telegraphic purposes, or closed elecains of any description. This Buttery received the FIRST PREMIUM over

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Cincinnati Industrial Exposition of 1873.

The size shown in the cut (No. 2), when charged with 5 the sulpinks of copier per cell, is emphile of working two or three main dentities of severage beight for MORE THAN ONE TEXTS without ANY ATTENTORY Whatever. The copier and since solu-tions are perfectly reparately, and there is

NO LOCAL ACTION.

and the circuit is assensively universe at all times. It is equally well adopted for a

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SOLE AGENTS.

nher 2 size (price \$2.50) is now ready for sale. Othe in preparation, and will soon he put on the market.

for any nursons requiring a uniform, powerful and ex-

The art of electro-gilding consists in depo-

siting, on a metallic article, a film of gold of

a rich color and firmly adhering to the basis. BURRER II. It is invariably the case that after science In the article on Gilding will be given infallihas given birth to a new art and nurtured it for ble directions for preventing the occua while, that it passes over to the industrial the black deposit, and producing firm sulbesion; world, where it is haptized in a new name, directions will also be given for producing firm | w elethed in a new garb, and set to work. Here adhesion between the basis and deposited allthe scientific world loses sight of it; all fu-ver, and a method described of making pure e-ture improvements remain with the artisan. vyanido of silver and patassum, free from ad-Science feels the alienation and can no longer mixture of potash or its sold saits. even correctly describe its offspring;-that which was an experiment of the laboratory or the leature table, has become a trade

Electro metallurgy has been described in The folloalmost every paper published in the country, pressed Aland there is not, perhaps, even a village where taken fro slivering and gilding has not been attempted which is by ingenious persons, but it has always failed gineering except to bring an outery against what is pit of Me termed galvanizing. This has been because mear Gla " The chemists describe an immatured art, in language which one professor of chemistry would this oco use in speaking of another; or the general transmiprinciples alone were treated of, and scientific at a pro technicalities professely offered in the place of merely

experience.

The electro arts are yet in their infancy, and The their importance is but beginning to be apprecia- in the ted. Silver is the only metal suitable for ma- windin ny table articles, but it is too scarce to beem- 100 fai ployed generally for this use; but the articles of abou can be made of a metal superior to allver in the ate nonhanical properties, and kept plated with To pure silver for less than the interest of the s dent money they would cost if made of silver; and would the facility with which electro-plating is executed, has entirely changed the method of stant producing them. Articles greatly excelling which in boldness of design and grace of execution, in conhave been so cheapened, that it gives even to Beside the laboring classes an opportunity to possess galle ome specimen of artistic skill to grace the defestive board or garnish the picture of home, con The voltaic precipitation of copper is of no great importance, for the voltaic motal is not Ma as liable to corrode as the ordinary metal, tinent Culinary articles formed of it must soon take a cor the place of the wretched tin pans, now so ge- by m nerally found in the kitchen. It is highly pro- alway bable that steam boilers formed of it would the d not be liable to incrustation, and, from non- nothi corrosion, would last many times longer than the those made from impure copper.

The formation of coin from voltain metal infor-

would have such advantages that our govcoment should no longer make cents from any of a c other, for this is the coin generally found in prese the hands of children, and is hamiled more, fluid perhaps, than any other; it is constantly ga- maci ding a coating of poisenous matter, which It readily adheres to the fingers; children fro- the c quently put these coins in their months, and consi death has not unfrequently ensued. Cents deem made of voltaio metal would always remain

The electrotype art is, however, rapidly rising to importance, and its advantages being pit-m appreciated; large engraved plates, which ing ti e required as much as three years to pro- se duce them, are now coming into use; it is miles known that 1,000 prints from one such plate, groun If the work is delicate, will wear it out; if the plate has cost \$5,000, the 1,000 prints must precis pass as cost 20,000, the 1,000 prints must precise pay this between them; this would be an in- but of superable obtained by the pass of the superable obtained by the section of the but the passes of the passes of the prints obtained, without which the passes of the prints obtained, without which the passes of the prints obtained, without which the prints of the passes of the prints of the passes of the prints of the passes of the pa

The voltage battery is an apparatus used the for obtaining an uninterrupted ownent of elec- engi

In the article on the Battery, the best for will be given, together with the relative ex- rool pense of all the various batteries in use-a de- th scription given of the Reservoir Voltale Batte. col ty, in which any amount of the voltain force The can be stowed away and drawn off as wanted, and with the certainty and facility that huid can and be retained and drawn from a cask, and which whe will maintain its action for any length of time-consumes nothing when not in use, and side is always ready for use, it not being liable to the got out of order until exhausted of material; ab

Supplement to Fire Record

FRED. J. MILLER,

NEW-YORK, FEBRUARY, 1874.

65 Liberty Street.

THE TOM THUMB TELEGRAPH.

"THERE is nothing equal to experiment impressing the facts of science upon the ind. Paraday used to say, with emphasis, bits pepile, that it was not sufficient to ead about meenets and electricity. He adfeed them to make the magnets, use the lectrical machines, and thus become, sten lectrical markines, and thus become, step or step, posttriety acquainted with the rhoto subject. As a means to such costs, so take especial pleasure in calling the adjusted of our readers to the Them Thurmh Splegmab. It affords the recease of illustrating the phenoment of electricity, at a out to results at the subject of the phenoments of electricity, at a out to results at the subject of summing the phenoments of electricity.

a electro-magnet, sounding armstare, a piranic battery, telegraph key, connecting sires, and chemicals, all complete for weekwhich with excellent directions for are familiated for \$31 neatly packed ind sent to all parts of the world, on receip f the price, by Farm, J. Mannen, 65 Liberty irect, New-York. "One of these little instruments is now in

and some curiosity to see what could be one with it, and will here give some o o with it, and will here give some of results: First, as to the battery. It is speed of two small plates, one of lead, of size, the latter covered with paper a septure, both pinter not to a compron opper are dissolved. This little battery on found, on tried, to run for two days and

ate click signal, and is, we think, yest as useful for learning the munipulation of the Morse alphabet, and for reading and receiving mersages by sound, as any of the graph, this little device may be used for

ging, that little decise may be send for superiorizating in many ways, and with present control of the superiorizating in many ways, and with a consideration of the superiorization and present consideration of the superiorization
with the lattery, and it may may be used to tected plating. For these and other interesting experiments, printed directions are given by the makers. For exhost, irror or small, the dovice will be found very morehi in the hands of the latelligent teacher, and in the hands of the latelligent teacher, es a moses of interesting instruction.

Schrimung in Francisco state of the International Conference on the Conference on th



Fig. 2.-THE KET. the electric circuit is closed, and the ele

the electric clreak is closed, and the elec-tricity flows from the less through the key, thence through the magnets K K, thence to the sine, and in the solution, from the size to the load, and o continually round and round; the flow of the electricity inand round; the flow of the electricity inc.parts suggestion to the less poles in the contress of K K, and draws the upper part of the armstars P, (795, 1,3 down upon the imagest, and theses out the lower part of the armstore g against the little brase, place, making a click. A chief is made every of the contract of plote, making a tires. A cross so assessed that then the key is pressed. Each click is a telegraph signal, and the length of time which the operator allows between the clicks littles to form the siphabet. Thus a sheet and a long click stand for A, and are represented on paper by a dot and a dash. thus ---. See illrections over for learning.

The properties of the control of the sail, which is sum by see seet and reformula me plant signature as seet and reformula to the plant signature are seen and reformula to the plant signature and the plant signature and the plant signature and the lower, or to a neighbor's house, will be losse, or to a neighbor's house, with the losse of the losse, and the losse, and the losse of the losses of the lo and must be renewed. This is done, threering away the solution, and propering new one. When the sulphate of copper



connectic is to just a small died of irras on the spindle of, the clock so that it reinter with the boar hand.

York is as follows .

to his advent.

jugal felicity.

district which embra

regards capability and gentlemanly qualiti-

entions, never lived. His hendquarters are

in New York, but he spends a considerable

portion of his time at home (Phills) in ec-

Mr. A. G. Stolbrand (St), late of the West

and South, is manager of the New York

offices, and all the best stations between

Mr. W. L. Capen, (C) recently from Wash

ington, is chief operator, and without doubt

ces all metropolita

D. N. G. V. I. A. A. Y. W. T. E. I. T. O.

We are actually giring away our Celebrated

Champion Learners' Instrument at our N V House

SEND STAMP FOR CERCULAR Partrick Bunnell & Co., 22 DEY STREET,

> N. Y. and Phila. He is getting very fat New York, June 27, 1874. and expects to go to Europe shortly for the benefit of his health Editor of the Operator

Netwithstanding the old adage that "little folks should be seen and not heard," one of the most rapid transmitters in the I venture to trespass sufficiently on your country. He occusionally exhibits specivaluable space and good nature to give mens of his fancy work for the edification your readers a skitch of the "automatic of give memory and the same training of visitors, and frequently reaches the intelligraph offices" in this city.

A considerable officers in this city.

Your residers, or most of them, are doubt minute. He has been suffering from them. has aware that at present we have but one mattern for some time—no doubt the result main wire, and that runs from New York of high living (National Hotel, 7th story).

Mr. Henneberry (II), just arrived from to Washington, with intermediate offices at Trenton, Phila. and Balto. We have, in Phila., one of the har addition, one short wire from New York to convert. He always has a word of encour-Newark, and two city lines. Our tariff is agement for the ladies, and receives many a activate, and two city lines. Our tariff is speciment or the indire, and receiver many a uniform to all pedias—35 coafe for twenty souther terror. (O'U) officiates on the words and coast for each additional word, where the coarse of the coast of the co

cich. Although mercantile business is ex-ceedingly dell this season, we send over American in his pocket, which, as usual, is eight hundred messages per day, not ineight hundred messages per our cluding office or free messages, over our wire, and could without difficulty handle Joker," does the honors at Bx. to the tune from 3,000 to 4,000 per day. We expect to of two hundred per day. Mr. Lillis, for have a Boston wire soon, after which the merly with the Manhattan Quotation Co., programme is to extend wires to all im- and one of the oldest operators in the coun portant points in the country. In view of try, is charge of "Ax" "O'C." and he this fact, it would be well for all Morse are mutual and inseparable friends.

operators to prepare for the worst. Practios on and perfect yourselves in the automatic system, for the day will come when
Town) does the handsonic at Cx, and handles mails system, one on way to way to washington Market business to the evident accomplish it is this: Save up your punnles, satisfaction of the marketmen.

secondinates one curve your personal particular to the grant of the curve, Start showly and regularly. In coque the speed gradually until you said extending so first that the crusk is invisible and their turn that way for affects manager.

and then turn that way for fifteen misuates.

After three or four years of this practice, year will no doubt be competent to work an by Maj. Maze Edwards, the smiling Galistonian to historicant on the transmiss. The personnel of the company in New lass recently returned from a sojourn at Gowannus, where they sandpapered his York I as follows:

(Gowannus, where they anadopured his full life in old viceran, and always has a smile too, his bountenance, which is greatly augmajority becaute and the state of the state thing, but we all devise him to the majority by extending him an arvitation to learn the state of the state of sandapaper.

Latt, though by no means heart, we have

"Coffee Parts" to include in the laxury of Mr. Whilldin, the sixty event man. He ple and milk. To Mr. Editon, the automatic system is indebted for its success, as tiffe principles. I say, Dis, how high is

they could do but " Little" with it previous that flagstaff? There are a number of other emplo Mr. Ed. H. Johnson, loug and very with whom I am not personally acquainted, favorably known in the profession, is our superintendent, and a better one, both as user leave them to be handled by some one batter posted than yourn, etc.,

Valtain Watters ... Presiditation

NUMBER VI.-(CONCLUSED.) in the place of the crainsty presence or pusting, for a cay; sizer this the amount of the last colling the metal into a thin sheet, listed by burnishing, and other modes of fin-

The first experimenters observed that the silver peoled off, when the burnisher was appiled, and also that it would rise in blisters by a gentle heat, and very frequently the adhesis. would be so slight as to let the silver peal off by gentle polishing.
The non-adhesion exhibited by the hurnish

er is owing to the extreme ductility of the vo'taic silver, although the film may be in perfeet union with the base, yet from the suddenness of the termination of one metal, and beginning of the other, and their different degrees of malleability and ductility, the action of the burnliker is confined entirely to the film realthough the expansion may appear as triffing, yet, being a molecular force, it must irresistible. Everybody is familiar with the action of these forces in the bursting of rocks b the freezing of water, and also in the reaking of iron and percelain by unequal ex-

To obviate thir, the surface to be plated should be well rubbed with fine sand-paper, o roughened by nitric acid when the article will admit of such treatment. After this roughenver, by dippping it into a very dilute

of nitrate of mercury for a few moput in .. the aliver bath. The film of necrossy acts as a solder in joining the two motals; the suc' lenness of the transition from one me tal to 'se other is avoided by the mercury dissolving a minute portion of the two metals and commingling them together.

Another great cause of non-adbesion acis from the deposited metal not being in actual contact with the bane, from the Interventier of heterogeneous matter. When a base metal is put into the cyanide of silver, it decompssee it; the cyanogen forming an insoluble coa ing of cyanide of zinc or copper, and on this coating the silver, which had been in union with the cyanogen, is deposited, giving the article a silvered appearance. We may non perceive that no matter how well an article has been cleaned prior to the battery operation, there is, after all, a coating of dirt under the allver: for the very immersion into the bath. converts the surface into a cyanida. This spontaneous decomposition is well exhibited by dipping a piece of polished steel into a solation of sulphate of copper : in a few seconds the steel is coated with a bright film of copper, but there is not the least adhesion, and examination shows that under this beautiful deposit

of corper there is a dirty layer of suinhate of iron. In connection with what is asid about this spontaneous decomposition, let it be under-stood that when the metal is precipitated by the battery, the acid or other selvent is outside : and also, that rapidly as the solution acts on the base, yet it still requires time, and that the cyanide of potassium acts more readily than the cyanide of silver. Taking all these circumstances in view, we are pointed to the following remedy: the solution should be very strong, and contain no more evanide of potassium than sufficient to dissolve, the or anide of silver. The buttery should be very strong on the article at the moment it is im mersed in the bath. The seticle, once coated by the buttery action, should be well brushe with chalk, after which the silver may I thickened by arrangements of the battery for preventing the black deposit noticed in the by this method, in conjunction with roughe

by this method, in conjunction with roughting and amplegamenting, retails every attempt to apparately firing the base.

Another transless spinler, attempt to the conting of attempt is, that the base to prove very crough, and also that some part will blacked and the part will work clear. Under good and the parts will work clear. Under good and the parts will work clear. thorough agitation are the ram

Along with the silver a small portion of cy anide is deposited : this makes the silver tornish very quickly. To get rid of this cyanide We will now take into consideration these lute solution of sulpharicacid for half a day, difficulties which beset the first attempts to then very slowly heated in an oven to the term difficustion within excellent propilitation of allier; persture of boiling oil, and kept at this heat in the place of the ordinary practice of plating, for a day; after this the articles are to be finisbing silver articles.



VOLTA.

QUIENTIFIC AMUSEMENTS. travels, to til, by post to be

Mr. Thomas A. Edison, of Newark, N. ., has for some time past been engaged in perfecting a system of "Quadruple Telegraphy," or sending two sets of message and receiving two sets at the same time over a single wire. His apparatus being in order for experimental work, Messra Orton, Prescutt, Hunter & Brown of the W. U. pleg. Co., and Mr. Grunt, of the Montreel

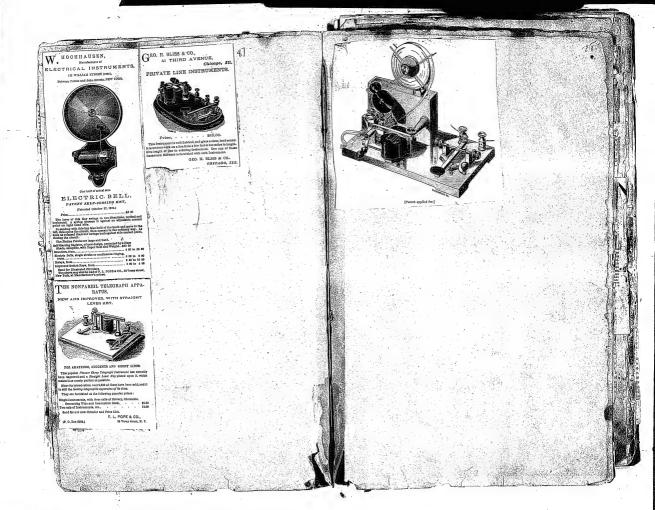
Aleg. Co., met in the electrician's office on Wednesday, 8th inst., where they wit nessed the successful working of the Quadruplex over a circuit of about two hundred miles in length, two wires having been leoped to Philadelphia and back for the

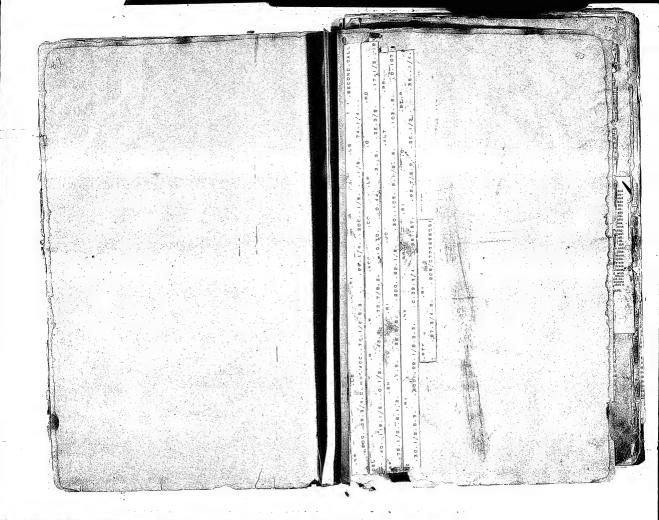
Messrs. Bogart, Phillips, Boileau, Mixer, Cook, Fullum, Gramzow and Kennedy of the night force took seats at the instruments, and for an hour exchanged newspoper specials at a rapid rate, all the instruments working nicely and promptly. Some changes in the instruments have surrested themselves to Mr. Edison, and as soon as these are made, in a few days, the experiment will be repeated on a longer circuit, it being proposed to use then a wire to Boston and back.

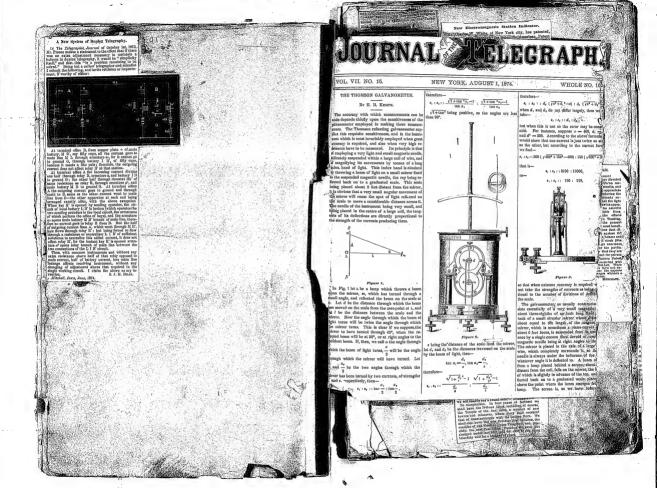
It is rumored in Wall street that the Erical Baltimore and Ohio and Pennsylvania Railroads "propose to build telegraph lines, over their own roads and such roads as hey control for the Automatic Telegraph Company, which will take these lines on a 100 year lease. The milroad companies, is sideration of having free use of the telograph lines, are to keep them in repair The instrument used is to be that of the Automatic Company, and it is claimed that the new company will be able to re duce the cost of messages by from one quarter to one half the present rates. Peter

II. Watson, of the Eric Railway, has been nod for President."

Scropbook 5-1685







sight, and is graduated usually to 800 divisions on magnet can be thus alld un or down the red, or through the centre of the galve

A plant-convex lens. This is toos so at to outsus (a high parts convex lens. This is toos so at to outsus (a high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is toos so at to outsus (but high parts convex lens. This is too so at to outsus lens to ou ted in their correct places without trouble or ment may be a plane one. When the spot of light marked for feture occasions or at least the cr per of shifting. Round brass plates press only is used, it is necessary to partially illuminate distance of the scale from the galvanometer no net the outer surfaces of the coils by means of the scale with a second lamp.

hole for the connecting aluminians wire to vibration can nearly affect it

twitted round as occasion may require. For fine sected beam of light should then fall fairly on The Thomson galvanometer is made in such a adjustments a tangent screw is provided, which scale. If too high, this may be remedied by pr Hely of forms that it will be impossible to de turns the brass red round and with it the magnet. | plog up the scale, and it too low, by screwing up to them all; we purpose therefore only to deof a plano-convex loss. This is done so as to obtain

and and see, as consense of a new formed of a fittle great seasor fixed over the nois in the transported with three level screen through which the beam emerges from the on the scale by turning the regulating magnet of t rows; two spirit levels, at right angles to one lamp. A much better arrangement than the spot of galvanometer by means of the screw, the spot or, are fixed on the top of this plate, so that light is made with some instruments. The hole light should be focused by advancing or retreapuer, are fixed on the top of this place, so that light is made with some instruments. And now again amount to reconstruct of the lamp and scale until a sharply defined imag dimes one circular level only is provided, but shout the size of a sixpence, with a piece of fine pis- obtained on the scale; the width of the sixt s nament on accurate revie one ju promised, but about the date of a skypence, with a piece of thee piec dobitated on the scale; the width of the skir feedle bred it must be lest arrangement. Herem wive attention of well-suffered vertically accurate littlesses. The scale inclinated is present of the book, or the book review to be book or the work of the scale in the sca the faces of the colls to fit into, so that they can be very distinctly seen. The mirror in this arrange-

to set up the training in the brass plate coinciding proceeding to set up the instrument for use to see If not required to be sensitive, place the regular the contro holes in the colls. The colls them that the chonic base is thereughly dry and clean, so magnet low down; if, on the contrary, it is requ which are four in number, as will be seen in that there may be no leakage from the wires to in- to be sensitive, place it high up. To obtain figure, are would on hobbies of this material, terfore with the tests taken. Indeed, it is as well to maximum sensitiveness the following device in ngare, are women on necessary as management, retrieve when the tests taken. Insects, it is as well to junximum retrievement use toward getween my wire being beinged up towards the check of the place the gulranometer and the other apparatus to be adopted :—Hains the magnet to the lop of the which tears against the brans plate. This is be used on a large sheet of guita-percha or chonic, lar, and when there turn it half round so that ping up is done in accordance with the law of more especially if the room in which the tests are to poles change places. The magnet will now be pung up a useen a secontainer wata use use of more especially it use room in which use use uses fire to produce a standard by William Thomson, so as to obtain, as far as he made is at all damp. Sometimes little chould be obsigned to active magnetism, and consequently up high is a maximum effect out of a minimum quantum constant of the in-

and two little magnets, n a most s, formed of the in a basement story. It is almost useless to met, and the secular will tend to keep north and the in-pring highly magnetized. They are contact the interval in it is an upper room, as the least vibration south; but by lowering the regulating magnetized. ring legisty magnetized. They are con- lest with it is an upper room, as the state violated to state of the s an attatic pair of needles. A small groove fro. At all cable works the instrument is placed on acts the earth's magnetism. Under these conditions in the brass plate, between the upper and a solid brick table built in the earth, so that no the needles will stand indifferently in any positi

record as required. When presend down as far done by drawing a line on the table exactly north and consequently the spot of light at the zero on will go the needles rest on the coils, and the and consequently the spot of light at the zero on the coils, and the coils and the same time, leaves them free to no process and the contract of Observation of each could be connected to one of the lap particularly level. Now remove the glass shade sometime of the laws of the instance and goardy rate in the sand at the top of the office.

In the condition of the little biologies greeners, and goardy rate in the sand at the top of the office.

In the mealium of the little biologies greeners anguest solveners to bottom of the lead of the colds.

The condition of the little biologies greeners anguest solveners to bottom of the lead of the colds.

The condition of the colds. The and the top of the leaves gladed in the little in such green that the property of the lead of the cold.

The condition of the colds. The colds are considered in the lead of the colds.

The cold of the colds. The cold of the colds. The and the top of the leaves gladed in the little in the late of the lead of the colds. and the top of the orans place in which the fact is almost a sensitively, because it is difficult then to keep gauss as on some that when the two middle like stud is raised by a direct put there is almost is selected on the lower of the interment of a containty or its consists or with a pick and breast with a selective of the containty of the consists of the consists of the containty of th ment for connecting the four coils together coming broken. The stud being raised sufficiently at at present adopted is highly desirable, so high to allow the mirror to swing clear of the coils, sey can be coupled up in series, by which the glass shade may be replaced and the brass root Subn arine Telegraph Company, recently hel the resistance of the galvasometer could be with the magnet on it serowed on to its top and the London, the Chairman said the vessel which to one-fourth the resistance of one of the magnet alleged about half way up the red, the poles been sent out in December last to repair the that is, one sixteenth of that of all the colis being placed so as to assist in keeping the magnetic in the cable had accomplished that object.

By connecting the first blading serew needles north and south. The scale ham being cost of the repairs and hire of the vessel had to hase with the third, and the second with the lighted, place it in its proper-position on the scale 220,000, in addition to which the company has the colls will be coupled up so as to reduce stand, the cope of the wick being turned towards the issance of the cells to one-fourth of the total brass slider regulating the width of the beam of light at from £13,600 to £13,000. To prevent the renec. of all the coils together. Over the coils The slider being opened to its full extent, the scale a similar loss of traffic in the future the di shade is placed from the middle of the top and lamp should be placed about 3 feet from the had decided on the construction and laying ich a brass rod risea. A short piece of brass galvanonoter, so that it stands parallel with the duplicate cable. There was also the necessite des over this rod with a weak steel magnet | acce of the colls, and also so that a line drawn a tright second cable to accommodate the large curved fixed at right angles to it. This angles to the scale from the lamp hole will pass | traffic with the West Indies and 5

velling screus of the galvanometer. It is easier to prep up the scale than to lowe

so that it can be placed right when required wi ws, and keep them firmly in their places. There To set up the Galeanometer.—It is essential before out trouble. The instrument is now ready for u which. The edges of the coils are covered strument to stand in, which asswers the purpose of standard for the region of the coils are covered strument to stand in, which asswers the purpose of standard for the coils are covered strument to stand in the covered covered to the covered strument to stand in the covered cover with. The orgen or the count are contained an advantage of the carth on the magnetic needles will be delies, so as to protect the wise from incleantileiles, so as to protect the wise from incleantiry. Within the holes in the brass plate are

The instrument should be set up on a very firm powerful than the magnetic needles will be magnetized or the regulating mit.

The instrument should be set up on a very firm powerful than the magnetize of the needles will be magnetized or the magnetized or the regulating mit. By placing the regulating magnet about an

tely in. In front of the top needle is fixed A suitable table being chosen, place the galvan-higher than the position which gives this en direct. The snapension fibre is attached, at ometer so that the two front levelling screws stand processes and the persons making the magnetism of the earth will be per cod, to a small stud, which can be ruised or or and south, the front facing work. This is best just sufficient to keep the magnets north and south.

CUBA SUBMARINE TELEGRAPH.

At an extraordinary general meeting of the C

New Electromagnetic Station Indicator.

The New Fire Alarm a analin'

a standatty in or os of fires is averywhere seki The main obstacle to man of the news at a satisfic . Carried her bean

sellim has won for its patentee fame and illigand has established itself in high gr.fb.sittos not as large is our own. The or in ditios not as large in our own. The shinary commended with this puter alarm filtriests, however, and it requires trained in to operate it. This feet and the origin to operate it. This feet and the origin for the shinary of the alarm faites a bar to a shinary of the shin

FIRST PRIOTICAL BRACE Firms saleriou. asien.
he needed method of alarm. By a constien of inventions in alarm has been
unted which, while it far simpler the
Campwell slarm, is also far cheaper.
100x larm, as we indicated Saturday,
we shibling at the rooms of Meerrs. HOME & AUSTIN,

he agents of the Walters Burglar Alarm, and one of our reporters virtual their office a the afternoon of Salarday and took fall

KIRRIES IS VAN LIGHTEN then that 'of the Genevell patent, not amounting to more blanchaft for a dity. An or the Genevell patent, not amounting to more blanchaft for a dity. An or the Genevell sarm is that if an alarm to the Genevell sarm is that if an alarm box stationed in any bonce or business problems to stationary the street becomes out of credee, it

DOES HOT AVERUE the working of the other loras. These stars boxes can be put in any lones along the roste, moreover, as a comparatively mall expense. The opin delited care required in connection with this sharm would be so men to system the stars would be so men to system the same of the stars
they are all in treation in the regular Walters Alarm, recording portion is the invention [Discon, of Newatt, N. J., who is yet in connection with telegraphy as in connection with telegraphy contion;
alarm has ordited much interest on tot the Fire and Police Commission-fer much of oldinan, and if is not that the city may soon be equipped.

Mr. Charles W. White, of New York city, has patented August 18, 1874, through the Scientific American Patent Agency, a quite ingenious station indicator, by means of which the names of places printed on an endless band are caused to appear and change by the action of mechanism, nirolled by electromagnets. The rollers over which the band passes are geared to each other, and are rotated by a spur wheel, which is itself turned by a ratchet in which a spar where, where is inself turned by a fatenes in which a pawl engages. The latter connects with levers vibrated by the movements of the magnet armstures, so as to cause the pawl to turn the ratchet, and so cause the band to move powt to surn toe reteres, and no cause toe sould to salve around the rollers. There are two sats of this gearing, in order that the band may be turned in either direction. addition to this, there is a check pawl, which is lifted when the carrying pawl is operated. This locks a ratchet, so that the band is firmly held at any point until again, set in motion by the mechanism. The indicators are placed in any convenlent position in the cars, and from each sot of magnets an independent circuit is led to the point whence the machine is to be controlled, where a suitable closer is placed in each circuit. Upon one circuit boing closed, the indicating ribbon is unwound from the top roll, and wound on the lower one; the other circuit established, the reverse takes place.

The mode of locking the mechanism and the ratchet arrangement for turning the rolls are novel, and embrace efficient improvements in the electromagnetic principle for operating station indicators.

WHAT WE INTEND.

The control of silections are in the control of the

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EXPERSI COMPANIES VS. THE PUBLIC.

EXECUTION TO. THE STREET, THE PROPERTY OF THE

western tildon) compole them to obarge essenced-rates on all business they transmit for the puill fermind our legislation at Washington that they's earl there to irelated for the people, not for peter corporations like the 'Isediffa Mail, Wasters Union and other components. The public is attitude with the present worsings of the barron's they are all they become disability to the barron's they are all they become disability with presence the cope-rom pany and pay their reputar charges without nourist. Let the how stand. No recognition



The HINTEROGROPHEM AND MINISTERS IN THE ADMINISTERS IN A CONTRACT OF THE ADMINISTRATION
apparatus operates in a highly effective mannyr, under the weakest electric currents, and he is able to receive and transmit messages by currents so weak that the ordinary magnetic instruments fall to sperate or even give an issicainagonic nonroments into operate or oven give an indica-tion of the passage of electricity. Thus, when the common thetraments stand still, owing to weakness of current, the Edjson telegraph will be at work up to its fullest expact y. Editon thegraph will be at work up to its full-st opact y. The author has baptized his discovery the Electrometograph, which is, peakings, as good attite as could be adopted. We subjoin the following original notes by the author, which or plain the piceuliar principle that like at the base of his discovery. These notes, we are confident, will be read with new populations.

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sty. In the ordinary working of this form of tensigneys, but be small are.

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graph. Newark, N. J., August, 1874.



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ELEGTRO MERCURIAL SEIRE SALAR

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Company Activities

WILLIASTRONES

Producer Viscouries

**P

JAMES ADAMS, (178) AGENT FOR EDISON'S INDUCTORIUM.

EIDAUAN AND THE SECRET STATE OF THE PROPERTY OF STATE SECRET STATE SECRET STATE OF THE PROPERTY OF STATE SECRET STATE SECRET STATE SECRET STATE SECRET
Address, JAMES ADAMS, Agt., 510 Warren Street, Brooklyn, A KOVEY MOTOR

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udging from past experience a Newark re-Judging from past experience a Newark re-porter would not necessarily be far out of the way in believing that the new motive power which is to revolutionize the intole system of moving large bedies and of prouring the greatest force at the least possible out would at last commute from this city. Therefore when a reporter of the RESSETER received an invitation to witness some scientific experiments with an electric engine at No. 415 Broad street yesterday afternoon, he went prepared to record the great achievement of a Newarker's ingenuity. On arriving at the place designated he went up stairs and found a cool; pleasant shop or isheratory on the second floor of the building situated at the junction of Broad and Plane streets. In the room which was filled with all sorts of lathes and curious machinery, were gathered a few mechanics and electricians and some people who were drawn there simply by curiosity. who were drawn there simply by carlosity. It would not require a person gifted with second sight to select from the group, the inventor whose genius had gathered the assumblage here. A short, thick-set man, with swarthy complexion, black moustache, thin giny bair, stood in his shirt shoves the centre of the group of interested spectators. A pair of the group of interested spectators. A pass of speciacles rested upon a well-formed mose, his fine face had the unmistakable look of a man of genius, but his hands pre-sented a very remarkable appearance. The skin was 'proled up' in great sakes and the ends of his fingers and finger nails were corroded by the action of acid. They looked indoed as if they had often served as the poles

doed as it they and often seven as its level of some galvanic battery.

He booked up and smilled kindly upon our reporter as he estered, ordently in doubt as to whether the new comer was a representative of the press or spins interest releasing or remer take metter had been solded he again turned to the speciators and resumed the thread of his remarks. "As I was about to say," he went on, "the great difficulty to be been to 'get' rid 'of 'the 'repellant' power. For instance, in a smill chine if you have a direct force of 100 and the return is 85 you still have a balance of 16 per cent, of power, which is sufficient to per cent. of power, which is sufficient to move a small wheat with great velocity, but yield you come to apply it to a heavier whole it wont bedge it. Now, X ask to work, to reduce, and, it possible, get rid entirely of this reverse force, but before I had accom-pliance and the possible of the com-pliance of model, it columned to me that I might perhaps make use of this repellant power, and this, gentlemen, is what I have sec, and this gentlemen, is what I have no in this machine. As soon as one of the gnets in this outside wheal has moved point on the inside wheal has moved point on the inside wheal has it there. I have been a soon of the property of the soon and the soon of the soon of the soon of the latter of the magnetic passes it about 1.50 miles. and velocity is attained. That

will be seen that the second of the second o rould be as long as your arm. In the ex-eriments yesterday he used a battery of only. three Bussen cells and obtained very satis-factory results. The experiments were brought about by the following correspond-three, which explains itself:

CAPT. HENRY M. PAINE 1.

The time of the ti

ony, and much dense, New Ar Rizza.

**Xrsana, July 5, 1874.

*Wm. Ap Rees, Esq.—Dear Sir.—I sreeps year proposition without any qualification, and appoint Menday nor at H. M. Paisza.

**Mr. Rees arrived about four occoor, and

air. Hees arrived about four Octoox, and the Motor, which with the solid from bed that-bolds it weighs about 800 pounds, was holst-ed by pulles as that it hung entirely clear ed by pullies so that it hang entirely reier, from every surrounding, object; "Why do you hang the machine up in that way, Gap-tian?" (Septian Piles replied that some peo-ple who thoroughly understood identificity—, and the, read, that, the more they knew the more akepited they were mission that there must be wires from a tremendous battery connected with it somewhere, and in order to show every one the fallacy of such a suppose tion he isolated it in that way,

able wheel?" ... Ooptain Talue ... One hundred and eighty five pounds." Reporter—"What is the highest velocity

you have attained upon it?" .. Captain Paine Four hundred and fifty revolutions per minute, with a twenty battery." What amount of nower door that represent?" Captain Paine-"About four home, power,

and with this three cell battery I think I can get 120 revolutions. We will see." The battery was attached, and the specia tors crowded closer, each with his watch in his hand, while the Captain applied a "speed or to the projecting end of the shaft with the following results: First trial 105 revolu-tions, second 105, third 109, and as the battery, which had been freely filled, began to get saturated, the revolutions increased to 112, then to 125, 120, 139, 140, and at last to 145 revolutions per minute. Every one was reply to questions concerning the cost of running the engine, the inventor replied that running the engine, the inventor replied that, it was almost too small to be calculated—about half a 'poiny-weight of kine per hours.' This may be considered a grand achievement, and the mane of Captain H. M. Peine will go down to posterily in the history of Newark, associated with the names of Boyden





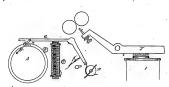
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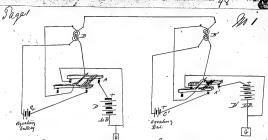




Self starter for a register

ABCDE are gear shafts of an ordinary regative of which A is the driving driver of the fair shaft of the magnet of singles lever the self appring apparatus is compared of the driving apparatus is compared of the driving to fair shaft as E; lever G, Magnet F, + boot to boot to

Magnet Fis is a same cuciit as Magnet I the armature of F , carried by lever & which has at one and a brection spring which rubs on drum A fan what when evelet to closed thereby stopper The clockword. at the other end of level G Right above the driver hange a boot by which rest he the drum. When the circuit is open lever & is drawn away from magnet by spring 1 setting free the fan shaft. The clockworks begins to work wow of foot H dances on top of the drum as it goes round of assumes an upright position how if I close the Good strike drive ou it end not allower piction of to troich fan shaft but if I teep permanently, closed loot travel wind with driver of gradually the fuction ster stops the clockwork but not for a seen seconds atter the last current has been sent



Ale principle of This is the employment of relay would will 2 exparate weres in one of which main battery chculates of in the other an equating, bakery. He coils being wound in opposite directions have earle + opposite magnetic effects, so that on preshing down Rey at a Where being an equal amount of magnetism in toth coils the relay is amothere at A. The Item A A' are moved have double Cever insulated pose each other but worther let There to a point a this dupler where the eignals cannot possibly be received with I that is when contact is made at the end during the time the lever at the other and is prepared from back to front point, when she line would fren.

Sab. 156.

2 Messages same line I same duction line came time. (Start, Yeenna) (1855) (Juplesc Turchen Siemen Halekte. Seposile directions. In this duples the relay country of 2 principle of this duplex is the pending coils 1+2 of equal + opposite magnetic of a current of l'different intensities sach of effect the chil 2 is conducated that en level which set a relay in motion at the receiving If key ylune the other coil I is connected The helaip are arranged in such between lever + a resistance to a earth. a manner that when the weaker current see sent only one relay proposed, when a Kesistance of coil 172 are equal strong current is sent the other relay responds Resistance of D must be equal to line & coil + by a local cucuit & opposing coil ovedcomes 3 of other end relay Current sent from A will not affect relay & the magnetism in the threst but when both key are worked at raine tithe a current pour toth because resistance of 1+D effual 2, line, 73, fatheres combined is sent & line whating but passing through only one coil 3 affects forth relays at the pame time at the sending thation 2 Keys are used A 48 relay & phase, through fact point the a bung a sumple Morse Key of 18 Luing provided ground. But should level it be passing will ask insulated earl contact at thek which from back to prout point during the time that A is closed the encit is not open it moves against points 546 Ballery His put into execut when key A is press but passes through 4 + resestance It to ground down connecting chrough point a well granted oruse that is a much meater recistance. I sending a wear entreled to line but current your, back through soil is & it By preading down B a shores current from D fema wound in Speposite direction works mow is dent bline & connecting with in pame sense H with double (face If the lever A' is on pour fromth then current shrough point 5 When both keys are pressed down at same has the ofstion of Going Morough & or evil time the united burrent of PFF for course & Restance I' in either Case the working ground through point to sending a Relan B' in the rame aurent equal to both & line through

Repeater No 1 at the receiving station he relay Blanci P 132. adjusted for Battery D & Relay H Relay H is also supplied with an exerca evils which are pat in curcuit by Bout of Relay & the contact The magnetism of H when & is working This khost circust is able supplied with an adjustable peristance coil is I balance the Magnetising power of the current by B Moro when I press down A this obvious battery a current coming from A passes through C.B.1. to For weak lattery is put to line which passes ground closing relay I 4. pulling battery I to through Relay a without affecting it be dis line K Through O.H. a current coming coming from K passes throng adjusted to high but affects 41 which is adjusted HFB & ground closing relay B & putting When I press down & battery Dis battery I t line A Shrough D.C. put to line which being twice as attrong closes Batchelor 1842 a which in the turn closes the opposing cercial for Klay H & preventing of from working When both key are present down at the same time a current equal to the intensition of toll fatteries is sent 2/3 of which walks the Relay & + /3 overcomes the opposing execut

Repeater No! shewing anangement

This consists of 2 switches FF! of 2 Keys GO' When they are repeating through the suntene are with warner too a 4 counted the line direct We son wines in a a connec on come in from A to C' + from A' to C When they want to send from penetting station sworth, must to turned down so as to send line through CH + Baken T to east.

MAGNETO-ELEGTRIC Alphabetical Dial Welegraph,

COMPANIES.

PRIVATE BUSINESS PURPOSES GENERALLY.

MANUFACTURED BY 1 ompany.

E. HOWARD & CO., Proprietors.

OFFICES

114 TREMONT STREET, BOSTON, MASS. 15 MAIDEN LANE. . .



DIRECTIONS FOR OPERATING.

When the crank, or "switch," in front of the machine is directed to the right, communication is established with the distant station. When it is upright, the bell can be rang from the distant station. When to the left the circuit is directed only through the Indicator, and the line is "open," or its circuit is broken. The circuit is also broken when the switch is in either diagonal position.

To operate, start the foot motion, turn the switch to the right hand position, and by pressing the white "star" key, and letting it go, allow the hands to revolve several times, stopping with the black key; this will ring the bell at the distant station. Wait for a single turn of the Indicator hand, then proceed with the message, stopping at the "star" between the words; and at the close of the message allow the hands to revolve several times, and finally

In receiving, always "break" when the message is unintelligible. To break, turn the switch to either diagonal position and immediately annuar the hand to correspond with each other, as follows; having "broken," as above, direct the transmitter hand to the same letter as the indicator, and, while holding the key, turn the switch to the left hand position, and allow the hands to go to the "star"; then turn the switch to the right hand position, and

The operator who breaks to have precedence in resuming. At the end of conversation send "O," "Star," "O," "Star," to denote that you are leaving the instrument, then both switches should be placed in the upright nosition. Examine the lightning arrester after a thunder-storm, and keep a clean piece of paper between the plates.

The serews holding the connecting wires should never be allowed to become loose. J. HAMBLET, JR., Electrician.

Each Yelegraph Machine Two Hundred and Twenty five encluding ball Welle & Lightning Arester, E. Howard &

naturo's agents, find a home in each individual me force of gravity? The perfect solution of such a proom would well repay many a year of porserviting cyrotion and of assidnous study, and well will those overded by whose labors the general cause of tea

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100

DRIGS CHAIS OHS etc. all of our own Importation.

	DRUG	S, GU.	ats, ort.	a, ere	, att of our own importation.			-
ASSAFETIDA, PRIME			//	# 35	HENBANE LEAVES (GERMAN)	#.		25
BALSAM COPAIBA, 10 per cent.	all to the come i	ne/	a.	1 10	OIL. ANISE (CANS, 165 Nz., \$8 00),	10.		3 60
BELLADONNA LEAVES	Ding = 11-1 1-11 1		8.	23	CASSIA (CANS. 16) No., \$1 NO	u.		2 00
			/A		CITRONELLA 22 oz. lavilles	A.		1 10
		** * **	10.	200	LEMON.	Ib.	1	5 110
			10.		LEMON GRASS, NATIVE, 12 or. Souther,	Ab.		: 75
CUBEBS,		44.5	.66.	120	WINTERS, 22 or, holler,	44.	1	2 20
POWDERED, (10 & can in			#	50		45.		5 75
(1 B, can inc	/.)		a.	36	NEROLI,	42.		8 25
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				7.5	Account to the second	45		1 10
GALBANUM, (NATIVE STE	MINED)		B.	no.	RHUBARB, CHINA (PRIME).	10.		85
GAMBOGE, PIPE. CASES				85	(G000 FLAT)			
Powoi	MED.			98	PRINE POWDERED, 1 III. Artile incl.,	W.		1 49
			16.	- 10	TRIMMED, in small select pieces,	18.		3 25
KINO, TRUE,			<i>A</i> .	- 40	SENNA, E. 1, 300 III, Jales, 10e.,	III.	i	13
MYRRH, EXTRA SELECT			/S.	25	LARGER LEAF,	a.		15
)OLIBANUM,			M.	30				
FRAGACANTH, (FLAKY			<i>M</i> .		Apply, 100cm	Mr.		20
	LI SIFTINGS,		a.	20	The state of the s			-11

EXPLANATION OF MARKS:-c. 12, corked bottle or vial, 12 ets.
s. 25, glass stoppered bottle or vial, 25 ets.

PRICES SUBJECT TO FLUCTUATIONS OF THE MARKET.

HOLMES

Burglar Alarm Telegraph.

Discussing, matching connected, from the total instead in the despite, and the control of the co

.PRICE LIST.

	Holmes' Burgiar Alarm Bell and Indicator		
	Total Cost of a House with 30 Connections	145	٥
No. 2.	Relines' Improved Burglar Abrau field and Annuncla- tor, upternally. Bings the bell and annunces the room		
	at the same time, when disturbed by a burglar	150	q
	Voch Consection, as above	- 1	
	Vetal Cost of a House with 30 Connections	205	¢
No. II.	New French Battery, which requires attention only once		
	in six to twelve months	20	•

No. 5. Improved with parties having the Alarm No. 1. if proetnoged with parties having the Alarm No. 1. if proferred, felt.
No. 6. Holmey 'Elevalor Annunciators, per room...
No. 7. Holmey 'Elevalor Annunciator,
No. 8. Holmey 'House Annunciator, per room...

The following gentlemen have Helmes' Bergier Alarm in the houses, with the milest confidence in their usefulness and efficiency Receases Service, A. H. HENNER, THE SAFE DEPOSET CO., W. W. MARRODOGOM,

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The Brown and Control of the Control

The accurate study of magnetic storms was alm impossible before photography was called to the aid of the observer; but now that every movement of the needle is faithfully recorded by the over watchful light of the gas let, a continuous curve shows at a glance the nature, extent, and duration of even the alightest disturbance. The arrangement of these self-recording magnets is extremely simple and equally effective. To each magnet, whose movements we desire to study, is attached a small mirror, and the rays from a gas jet falling on the mirror, are sent by it to a cylinder covored with sensitized paper. A lens brings the rays to a focus on the cylinder, and this focus traces on the paper every movement of the sungest. A second mir-ror fixed immediately underneath the first, but having no connection with the magnet, sends the rays of the gns jet always in the same direction, and thus traces a base line from which the variations of the magnetic curve can be measured with the greatest exactness. A clock turns the cylinder through a complete revolution in twenty-four hours, and the light being out off for a few minutes every two hours, breaks are thus made in the curve, which serve as an excellent time scale. The magnetic curves, traced in this manner, are in general lightly irregular lines, which reach their highest point toward 2 P.M., and are more or less curved at all hours of the day. Scarcely a day passes without some apparently accidental departure from the ordinary bend of the line, but these disturbances are often only of short duration. There are however occasions on which the marriets seem to be subject to the action of a disturbing force for exceeding in intensity any of those we have been hitherto considering and subject itself to no apparent laws, but causing the needle not unfrequently to oscillate through several degrees of are on either side of its mean position. It will be interesting power, which assumes such Protean shapes, at one time mising a storm that dies away as gradually as it comall its fury; now continuing its disturbing action for days together, and then importing but a single memon tary impulse; affecting hometimes one element, and then another, and sometimes altogether; and finally appearing not unfrequently at the same hour on several

secretive days.

The obtainabless of these distributes with, the ranking of entitl corrects, so prefetely recorded up the process of the control of the cont

I must however before concluding, allowed per commonate to them researches of Dir. In Man, Siemant, and the researches of Dir. In Man, Siemant, and the researches of Dir. In Man, Siemant, and the period of direct period of the
ARTOMATIC (PIRE) SIGNAL TELEGRAPH COMPANY, NO. 42 PINE STREET, NEW YORK.

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Since the time when Bir Walter Scott pronou tent shridger of time and space," so marvelous has moted. been the progress of invention in the improvement of the locomotive and the steamship, and particuelectric fiuld.

dry goods merchant in New York City, having for broken out. saveral years employed himself in the endeavor to dis | But to explain more minutely by what means the was corned, with the following officers and direct-General control of the way, all of them, and had their re-frest, wiso, by the way, all of them, and had their re-present speciates Producted, John O. Basket Gen-sent Superintendent, J. D. From Discours——We will be a larger instrument called the Transmitt. incom-graphic control of the construction of t John C. Beale and Wm. B. Watkins.

These gentlemen immediately entered into nerotiations with the Committee on Fire Pairel of the signal to the Patrol station. There slow heats of the New York Board of Fire Underwriters to recure a bell indicate the street and number of the house from connection with that body, and arrangements were which the signal has come, and rapid strokes immedimade whereby the Fire Insurance Patrol stational stely succeeding them the floor. In short, all necessary were conditioned the terminal offices for the Com- particulars for the use of the Patrol are available in alpany's fire circuits, and since that time Mr. Watkins's invention has been employed as the most effective any room in the building becomes heated to an abnorof recent accessions to the utility of this organization. The next few months were occupied in per- Thermostat to heat that it can be adjusted to origisecting the system and apparatus of the Company, mate the signal at a temperature from 100 to 150 deand late in the Pall of '73 it commenced notice operations.

after exceled investigation, because fully satisfied in | neientific reason that the heated air must ascend. regard to the benefits to be derived by the insurance nany's apparatus

ease of fire they do their utmost to extinguish it, since promptly adjusted. the invention of Mr. Babcock's Extingulator by means

pany is now to be found both night and day at ev. the appliances we have treated, not alone in this city. of the recommenced we have retained in the city, lastly in the application of electricity through vari- ery Fire Instrumes Patrol, and his duties are to see but in all great centres of population. It seems no larly is the application of electrony torongs wars lery first matrance rand, and an advantage of the policy of the fraction of the control of the fractions of the control of ous stages of increasing servicenously, that he hard! to me our to me our to me our reasons in some degree tech himself hardly less than the "bard" who pro communicate with the Patrol. He is anticipated in acquainted with their nature and their use, and at neces against a matery near than the same two communities whit had all however, so far as indicating the net, this time it only remains for us to record our apprenounced it, would be started nimest into increasing time latter dury, noneral, a time the most lime it only remains for us to record our approby the stations, has completely transformed the ast ment his bell commences to strike, the intelligent Renn, Superintendent of the Company whose name vanced minimum, and completely the action means are means are companied to the complete which are send at the head of this article, in personally fire. poct of their civilization. If it not our present per merces, who have stood ready a standa at the ment of that article, in personally furness to yield to that fuscioning tempistion which their stalls, and the fremen have made ready to 80 nishing us with the materials necessary to its prewould set us about stating in a detailed and sequential form what these developments and inventions are, as we shall presently see more particularly, gives but to call the attention of our renders to the latest not alone the street where the fire is located, but the and, so far as we know, the most interesting and number and which floor of the building is attacked. surprising adaptation of human control over the Phis is a great advance upon the capability of the Fire Department, which is yet dependent for signals We are indebted to Mr. W. B. Watkins for this altogether upon the old-fashioned pole boxes, which wonderful luvention. This gentleman, originally a merely indicate the district in which a fire has

cover some means of obviating the great damage | wonderful results we have already indicated are done by water at fires on account chiefly of the brought about by the new Automatic Alarm. Let headway made before the possible arrival of appli- us suppose the case of a building in Broadway in ances for extinguishing them, in the year 1870 pro- connection with the Patrol in Murray street. It cured his first patent for an invention by which a consists of five stories. Placed along the ceiling at fire was itself made to give an playin in its includent, intervals of twenty five feet in each of these stories stage, thus inducing the earliest possible use of the is a number of what are called Thermostats. These facilities already in employment for the purpose of are small instruments consisting of a brass tube, in putting out conflagrations. Between that date and which is placed a compound metalife coli, compos-April, 1873, he took out other patents for the pro- ed of two metals of unequal expansive and contracttection of the several improvements he successively live power. By the action of heat upon this coil it introduced, and during the following Summer the expands until R touches an adjustable screw, which AUTOMATIC (FIRE) SIGNAL TELEGRAPH COMPANY projects through the side of the tube. By this means

Crowell, David Salomon, J. Boorman Johnston, building. The electric current operating through a tanguet in connection with the kind of clock work of which the Transmitter partly consists, conveys a most a finih from the time when the atmosphere of mal degree. So scusitive, indeed, is the coll in the green F. higher than the average temperature of the Placing the Thermostats in the ceiling, it is Shortly after the attention of the Board of Fire readily seen, is the best arrangement, not so much Underwriters being directed to this system, they, on second of the superior convenience, as for the

In addition to the leading advantages we have interests from its general introduction, and according stated above, it is important to be remembered that ly adopted resolutions granting a reduction of insur- no person can interfere with the wires in the slightance rates to all property protected by this Com- est degree without giving an alarm at the Patrol station denoting the interference, not to speak of Our readers are already aware that the Patrel is the impossibility of cutting or breaking them witha body of firemen employed since 1839 by the Baard out detection. Any disturbance in the electric acof Fire Underwriters, and is an organization on tion, however occasioned, duly reports itself, and if tirely independent of the city Fire Department. In the cause is removable by human skill is therefore

replace, to far as they can, the endangered property | To practical men there can be no need of enlarge process, so are as they seem to an arranging inside ing upon the emisent protection against fire afford. by covering it with water-proof impressing the building, or removing it into the street and prothe bunding, or removing it into the same means. It is plain that tomatic (Fire) Signal Telegraph Company. There such an invention as Mr. Watkins's must be of in- are now in New York above two hundred and fifty such an invention as Jat. standard and nine its as- | business establishments in communication with their ealculable value to this organization, and minutes are constitution with the Automatic (Fire) Signal Tele-Since the time when hir waiter boots pronounced receision with the Adopted Company, its usefulness has been greatly proing augmented at the rate of two or more per day. We are not intending upon the province of the are An impactor in the service of the telegraph com- plet in anticipating an, at present, incalculable use of

The New Arizona Telegraph Extension.-The New Line to Bakersfield, etc.

Say Dravio Cat., June 28. The many Property of The The Control of the o the Lieron of The Talkarvette.
Thus following, from the Arizona Citizen (which is
ablished at Thuson, Arizona Territory) of June 21st,
abstantiates the opinion in my last better in regard to

smeanntlates the opinion in my last letter in regard the telegraph line which is proposed to be construct Arizona. The Newborn, which is referred to in this item, is The Newton, which between San Francisco, Cil, a Yuma, A. T., which latter place is on the Colora river, near the Gulf of California; "Mr. R. B. Haines, District Superintendent of t

⁸⁴ Mr. R. R. Halmes, Biotziet Superinceasures on on Western Union Telegraph: Company, cought nor to be in Arizona to superintend the construction of the nili-tary telegraph from Present to Tueson. He arrived at Los Augeles on the 11th instant, and carried with him official instructions to report to the chief quanti-mostors of Arizona, which he intended to do after a dybutteries &c., are now on the

a connection is formed with a galvanic battery What General Dana has said."
The San Diego Union states that the Western Union

this battery will be readily undered

Original Articles.

The Eagles Metallic Galvanic Battery.

That long here a decleration matter problem is a long here a decleration among procless electricians to obtain a galvanic battery, adapted to telegraph and other purposes, which require a constant and uniform energet of electricity, and capible of sustaining prodoughed action, without renewal or reclarge jug, and that about the nt the same time effective and ing.

economical. To this chairman time, stony and experiment have been devoted, and numerous considerations of elements and forms of buttery have been deviced for this purpose; but their success generally has not been such as to realize the expectations of their jurea-

ns. The difficulties which have so often throuted forme

The difficulties which have so often throated former efforts have been overcome in the ligible Metallie has tery, which is now presented to the public after that the tery, which is now presented to the public after that the tery, which is now presented to the public after the tery that the tery that the term of the tery that the term of the tery that the term of t

l. many respects it differs from any galvanic buttery

nical. To this end much time, study and expe

reluced.

An experimental cell of this battery was reconstant to for a large just of the time on short local circuits for aim months, without revbazing, and at the end of area shall time was still in good clicities condition. About if the pounds of sulphate of copper was originally placed in this cell.

and points or subplate of copper was originally placed.
The larger of its excellently adapted for running
selection motion, and is the only commonical lattery as
you discovered in this anagence. A most was operated, some starting of the common of the control of the control
starting for several days and might continue to the
lattery continued in offective variance condition,
the lattery continued in offective variance condition,
with now of these costs for views without renoval, or
exhausting its electromatics force.

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Figure I represents the external

the state of the s signed for, and adapted to the partyons for which Yang. In settling, up or peptugging this latery it is only necessary to pair into the boat cells a quantity of many of the period of the settlement of the cells and the period cells are appeared to the settlement of the cells of

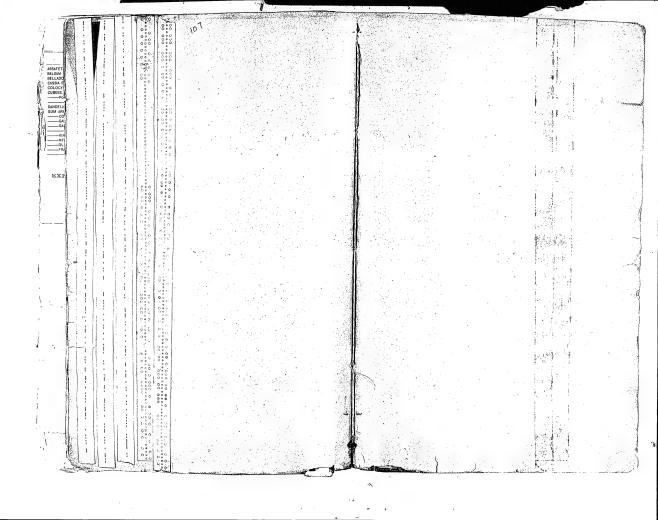


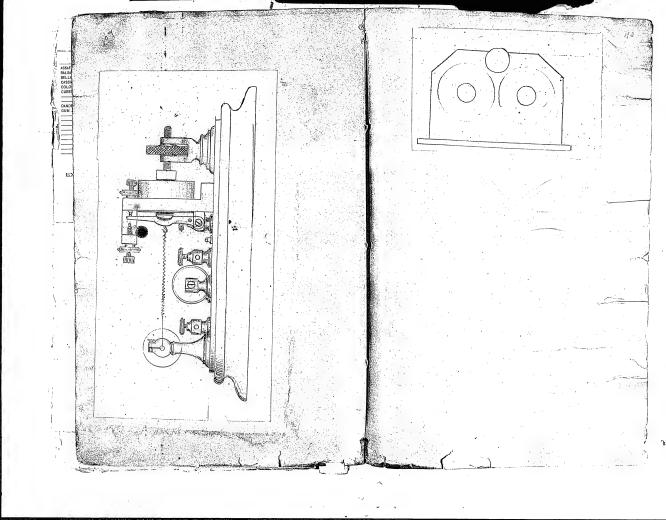
crystals, except at long intervals, nunceusary, so that the attention required is very little. When properly and the model will remain in good entire condition until the whole assessed of the subplants of copper in fredered.

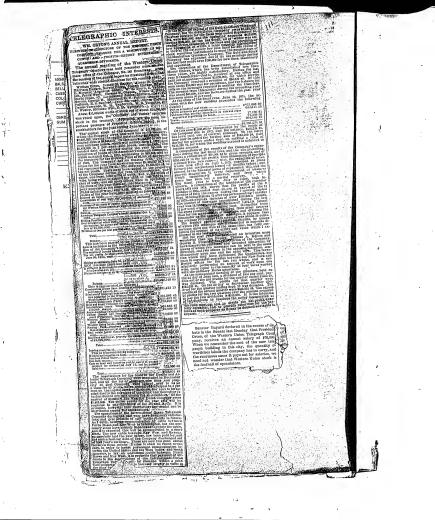
An of the subplants of copper in the investment of the subplants of copper in the investment. It is regarded as near threshold means that the subplants of copper in the investment. It is regarded in the investment of the subplants of copper in the investment. We follow in Regions, of this ciry. It will be investment. We follow the Regions of the circumstant of the subplants of the subplant piper is the inventor. Mr. Edwin Englist, of this city. It visualization and anomalization of the control of the same property of the s

The cells may be obtained of P. L. Pope & Co If Vessy street, in this city, who will be hoppy to fur-sish any additional information that may be desired.

of this centrivance; or, falling in this possibility, they







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THE TELEGRAPI CALL SECTION OF THE TELEGRAPH CA THE TELEGRAPH WAR, copy of the general evolut making changes in the depart— FARTYPET ORAN \$1,000.—1. The till Bellet of the philipse States in a newly operational with A record Business of the States that the states of the States of the Systematical Q. (Clovy), a \$1. Secretization of the States of the Systematical Q. (Clovy), a \$2. Secretization of the States States of the States States of the States of the States of the States States of the States States of the States of the States of the States States of the States States of the States of the States of the States States of the States States of the States of the States of the States States of the The States of the States States of the S contains o, dere Freit, Gerent Spermenten Ver Bryen sentitus on Stein St singlet and simulational telegraphy. "Of the policies of the policy of t was only corporedly present, but he returned after a noment, and said (still politoly): "There will undoubtedly be a contest of title." Further efforts to obtain information from this source secured likely to meet with no better success-and the visitor (politely) withdraw.

ELEGRAPHIC INTERESTS

ANNUAL REPORT OF THE WESTERN UNION TELEGRAPH COMPANY, ECTION OF OFFICERS FOR THE ENSUING YEAR-A REVIEW OF THE WORK OF

THE COMPANY—A GOOD EXHIBIT.

The annual meeting of the stockholders of The annual meeting of the stockholders of the Western Unite Origraph, Congany was held; posterday, when the following prelitient were intered Directors for the remise; you, there being so opposition (tider's William Orton, Jarass II. Consker, Alzons D. Corenti, Ilarrows Durke, New-vai Girco, Jacoph Harker, Zéwin D. Meeuns, Augustez Schell, W. K. Thern, C. Vendrichi, Prank Wark, Chester W. Cluphu, Willes G. Heart, Cavif Jones, L. Galvigate, Jones Müldern, Leri Davin Suret, C. Lavington, Some Manual Love, P. Marton, George H. Mumford, O. H. Palaner, George M. Pullman, E. S. Sandford, John Steward, Mosea Taylor, Daniel Torrance, W. H. Vandetbill, W. R. Vermilye, E. B. Wesley, Stillman Witt, E. D.

Prosident Orton presented the annual report, to the Stockholders of the Western Union Telegraph Company:

In pursuance of a requirement of the by-laws of the company, and of instructions of the Excentive Committee, I whealt the following report of the greentions of the company for the fiscal year underlying 50, 1874;

ne 33, 1674 ; be capital work of the company is \$11,013,(10, of the the company owns, and now has so, its treas-\$2,587,333, heaving the capital outstanding \$33,ended debt is \$3,010,010. Of this sum \$4.413,on bended data is \$1,00,010. Of inlies are \$1.481, as is norm to per unit. currency (node, which will no Nov. 1, 1975, and \$4,00,000 is appear per cont. bonds, also is 1972. The 19800d door year read-entring its year by the redrespiton of bonds in American Telegraph Composer, which madd Oct. 1, 1971, amendment to \$2,000, and by the thouse for the shalling fand of \$1,000 of the bonds

do not no seeming, one of the company has no facating dold, received for the year from all secures were, 633 00, and the exponent \$6,130,130 83. The mary \$12,030 15, in the not years, received the company of the comp here have been added to the projects of the com-ty during the year, by constitution, perchase, and a ARM miles of year, and MILOS miles of wire, g equal to about eight year cent. of the smal-irs per cent, of wire, and 4f8 some offices were persisten at the close of the year libra at the lea-mer. The company over-civil at the close of the J. M. Combes of the year, and the men and over the company over-civil at the close of the persistent at the close of the year, and

planing. The conyeary over-cived at the clase of the tree. Indicate base is the part of th

amoustiff, "Alexander Concerns and Concerns 8R.500 00 30,000 00

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Total 95,012,046 84

e surplus of lacous scottest, July 1, 850, washington scottest, July 1, 850, washington scottest, July 1, 850, was. e net prefits for elaht years, from ely 1, 1850, to June 30, 1874, were... 42,800,838 00

haly is 1990, to June 30. 1974, wore. 20.509,000 for Making as aggregate, June 30. 1974, 97. 1974, 990 Of this sum there has bren Darrheidel in dividends to specificables. 20.20,104,000 Darrheidel in dividends to specificables. 20.20,101 Definition of the second secon

2,531,333 81 05 001,147 15 A15 540 740 05 setion of new lines, erection of ional wires, parelimes of votruis. chees of telegraph libra rad of him seld of telegraph states and of him seld of telegraphs controlled by the selden Dales Company, on which dorrest or Girblands ion poid as 41 931 453 15 1,011,025 45

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dd mad basek Teleprapis Casajony's
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The approach of the Department of Department of the Department of

coss which has attended their operation, this specific school edgment seems to be due to blin. THE NEW BUILDING.

At the close of the first year, Jense 10, 1874, the account wait the new building proceeded the fed-howing exhibit a new building proceeded the fed-howing exhibits, petuling, section 10, 2014 1273, petuling, some research at a pair, not white patients and patients the b Interest territor. 27,174,174 [1] All the first territors are considered as a second as a

GENERAL BRUSEN. A compensor of the results of the company's op-results similar the last desired corrections in the part of the results of results in the part of the results of the con-ception, since (2.54.21.21.21 in this see partial. For a Third influenties of resistant support of rates, while Third influenties of resistant support of rates, while the results of the re-sult naturalized studies of natural to form, and, see the results of the results of the results of the re-lation of the results of the results of the re-lation of the results of the results of the re-turn of the results of the results of the re-lation of the results of the re-lation of the results of the re-defined by the results of the re-turn of the re-

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RESUMPTION OF INVESTORS

annual report concluded as follows : My last named report concluded as follows; with the interest of where startes promised and proposed and with the startes of the startes promised and promise with the shade to district a small read, if it is the proposed with the shade to district a small read, if it is the proposed with the shade of the startes of the proposed with the startes of the proposed with the startes of of the Directors to continue the at the June meeting, and to di-

rids atherwise for the norment of such property as it may be dremed salvisation to require. Respectfully submitted, WILLIAM ORTOX, President. - 101 J

BANKING AND PINANCIAL ATLANTIC AND PARTIE TELEGRAPH COM-PANY,

Ou and after Manday, Feb. 15, 1875; the tariffent
of the Atlantic and Pacific Telegraph Company will be
teduced as follows:

Poregels Western additional Cubes Words Interola... evo New York City Jahong, N. Y., mild evolution points... evo New-York City f Bosters, Mars, and evolution points... 25 us 2 40 sad 3 22 2 30 464 9

ittre of niversinger will be milited free, as hepetafore, a substity introduced including affended by the uses of ed my decorated including affended particularly is Athalia and Partico Telegraph Crumpany, resul-reduction generated to, and reductions of some reduction. THOMAS T. DERERT, President. Shin are.

ppant of loas. If the superior modes of worked which the Atlantic and Pacific appear which the Atlantic and Pacific service; the copoly, warrant the reduction, sources during the property of it could. The public, how-

measure also in failing to seems these special enter largely into minute Annual by most service for the annual by most service for the annual of the first service for the service for the service of the service service for the service servi sub our may offering it. If they make o hadily and are not promptly met by no of the lon, they will be sure to get

CHEAP TELEGRAPHY AT LAST. CHEAP TELEGRAPHY AT LAST.

It is matter for congratulation that there is a fair prespect of cheap telegraphy at last. One result of the sharp discussion provoked by the extertionate rates and overbearing disposition. extortionate rates and evergearing disposition of the Western Union monopoly is the develop-ment of an opposition which promises to com-

ment of an opposition which promises to com-pela general reduction of rates and increase of accommodations. The Admide and Pacific Telegraph Company has connections between the two occurs and prosection all the recent improvement in telegraphy. It is also has in telegraphy and the recent improvement as the quadrupter, which Mr. Ordon, of the Meerer Union, has highly praised, and which it was generally suphighly praised, and which it was generally sup-posed that company had socured. But, it seems that the Western Union, after a series of practical experiments, neglected to secure a title to the new patents, and they have good into the hands of this rivat company. The lossappurp is insched with a lorge capital, and is under the control of energotic and enterprising men, who will accommodate the business pub-lic without requiring double pay for every mes-sage they transmit.

The first effect of this telegraphic rivalry will Le the cheapening of messages to the business public. This will be an important gain, But, quite as important a result will be the weaken, ing of the Associated Press monopoly, which quite as important a resust win to the property, which ing of the Associated Press manopoly, which will kee its power with the development of a powerful rival to the Western Union lines. This will be an important step towards that the property of the highest control of the property of the propert rec-trade in news on which the highest development of journalism depends, the history of all competitions the history of all compression, this has one ending: the rival com-panies quarrel until each is satisfied that punies quarrel until each is satisfied that to terms and compet the public to support two corporations instead of one. What is wanted s the immediate passage of the bill introdu into the Semite by Mr. Dorsey and into the House by General Butler, making every telegraph line a postal route, thus placing the tole graphs of the country under governmental regulation. This will protect the recode rigulation. This will protect the people-against the exactions of greetly coppo-rations, and pave the way to the ultimate absorption of this important inter-est into the (foverament, where it belongs). There is no more reason why the telegraphs should be operated by private corpora-tions that this thin make a protection. tions than that the mails should be given over to express companies. The Government beings a letter from San Francisco to this city for three cents. What would a private enterprise bring it for! charges twice and often four times what i

should for the transmission of me graph. Yes there are papers and people who affect to see unspeakable beauty in the system that robs the people and mulets the business of the country for the benefit of private spreantors The public will please bear in mind that Tue ALLY GRAPHIC alone of all the papers in the

country has made a fight against the Western Union Telegraph Company and the Associated Press, with a view to two things-first, cheap telegraphy; and, second, free trade in news. We are on the eve of getting a fair instalment The state of the s three mouths from now the mercantile con munity can get their telegraphing done for one-half or one-third the present rates, it ought to be remembered that The Gazenic alone, of all the newspaper press of the country, made this light. And if we finally get free trade in news, let it be also remembered that THE GRAPHIC alone made that fight, It

will be something to boust of on the part of a young newspaper that, either because of the inherent weight of the considerations it urged or hecause it was not entangled by arrange-ments with existing monopolies, it was enabled to forceast what is soon to take place. With free trade in news we shall doubtless have see eral new papers in New York stronger and better than any which at present exist, and two or three of the weakest of the Associated Press papers will go into bankruptcy and pass out of existence; but there will be a better representation of public opinion, because only the most fit and powerful journals will survive the struggle. Walter Trans.

THE APPROACHING END OF A ONCE POWERFUL MONOPOLY FOWERIFU, MONOPOLY.

To the Editors of the Technique Plat.

To the Editors of the Technique Plat.

To the Editors of the Technique Plat.

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To the Editors of the Technique Plat.

To the Special Plat.

To the Special Plat.

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The Technique Plat.

T

its service should be rendered at the lowest cost consistent with a fair remuneration upon the trus and necessary outlay of capital involved. So far from this being the case, nearly the entire far from this being the case, mearly the entire telegraphing of the country has been abasele i by eee mansmoth corporation, which, feeling ac-cure in its monepoly, has issued no enormous amount of stock for merely nominal considera-tions, and demands that its herimons shall be con-ducted at motes that will leave an eight or benducted at rates that will leave an eight or but per cent, dividend upon its recklessly, "watered" enpital. It is probably much within the truth to say that \$12,00,000 honest outlay would provide a system of lines as extensive as that owned by the Western Union, Compuny and much better combinate, and as the size of the computer of the computer of the probable of the computer of th the Western Union Company and much better oquipped; and yet that corporation has escuent-ered itself with a capital stock of \$13,003,003, besides a round bended dobs which brings up its paper cayful to close floor \$30,000,005. Let us see how this monstrons shann has been construct-....

ed.

Seventeen jours go the Western Union had a
modest capital of \$355,700. Eight years later
the stock had expanded to the magnificent proportions of \$21,00,000, of which \$4,021,000 and
and in the receivant of executing lines while issued in the purchase of computing lines, while nearly \$18,000,000 was issued in stock dividends. What actual value this enormous dilution may be supposed to have represented can by judget from the fact that the stock was not then worth in the market twenty-five conts on the dollar. This, however, was the first attempt to sprend This, however, was the first attempt to spread out an immense paper capital, which should bereafter affeed a phaselible precare for imposing on the pables an oppreasive tariff of charges. He next step toward monopoly was the parenase of the United States Company, for "lick ware-na & 70.00.00 of whock was given b, an "Joh purpose \$7,216,560 of stock was issue I, an income certainly five times the true value of the Carount certainly five times the true value of the property. Next came the absorption of the American Telegraph Company. The stock of this company was almost as much inflated as that of the Western Union, and amounted to \$4,843, or the Western Union, and amounted to \$2.8.5].
100; and yet to procure the line, and thereby remore the one-renating eletacle to an absolute
monopoly, \$11,853,00 of Western Union stock
was facted to secure possession of the line. This
fet the fullated thing that our railroad king has aken under his wing, rapposing, apparently, has the cleares of his name will lead people to believe there is something solid about it. If Mr. Vanderbilt can be sure of shutting off 19. If Mr. Vanischilit can to some of situating out in apposition, to multiple possibly recent in the magnetic content of the proposition of the p I do not think it is possible. Mosopoly is the strongest of all temptations to competition, and the ten millions that may be acceled to defeat this inflated monopoly will certainly be soon forthcom-ing. The Atlantic and Pacific which from small unings, has gradually extended its lines to as now to compete closely with the Western Union on the leading routes of trades, is an illustration of the case with which this bubble may be pricked. A young company, managed with economy using now and improved patents, and leaving to the Western Union thomanis of miles of its leavi-productive line, could nake handsome earnings and yet compel assis a reduction in the charges ed. A young company, managed with economy

and yet comped such a reduction in the charges of the smoothy at to make it moures over Peper of the smoothy of a to make it in the control of the smoothy of a to the charge it is divided becomind it not impossible. May special jumpose in calling attention to this matter is not smooth as the matter is not smooth as the matter in the charge to predest matter is not induce the predict and it possible on the control of the matter is not induced in the charge of the control of the matter is not induced in the charge of the control of the charge of the char - Val

HON-GEO. HARRISTON

MI DEAR SIR

NOT LONG AFTER AUTOMITTIC TELE-GRAPHY IS IN SHCCESSFUL USE AND ITS ULTIMATE SUCCESS IS NO LONGER A PROBLEM -- REMITTANCES BY-WIRE WILL BECOME THE ALMOS# UNIVERSAL AND POPU-LAR METHOD OF DISTANT PAYMENTS

UNDER A PROPER ORGANIZATION

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FORTGES- - ALTERED-CHECKS- -AND OTHER TAINGENIOUS DEVICES FOR THE FRAUDULENT OBTAINMENT OF MONEY IN MERCANTILE TRANSACTIONS WILL BE A THING OF THE PAST- - -

YOU WILL THEN BE ABLE . IF YOU SO DESIRE TO RPAY FROM NEW YORK A CREITOR IN ST. LOUIS AS PROMPTLY AND SAFELY AS YOU GAN GIVE YOUR OWN BUTCHER AN ORDER FOR YOUR DAYS DINNER OR SUPPÉR - -

OFFICE MONEY ORDE S AND BANKERS ARR RANGEMENTS WITH EACH OTHER WILL EFFECT ALL THIS BY WIRE ---

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Automatic wire to be welled at few time bard yet. On the runs time at the property of the pro

the Marrievicus.

North.—The extreme simplicity of automatic tole-prophy and the fact that it is necomplished chiraly by very simple modificer, adminst the use of vicing lator, of which overy village in the country has an labor, of which every village in the country has an over-supply of well-edge sted young indicated young men who can become thoroughly producest in copy-ing and reading telegrams and in morather the new conting muchines in ten to thirty days. The age of the work and the mechanical devices for over It are such that an error in telegraphing is marry or quite impossible, even with beginners.

durant with reluctance of the believe the male the different systems of telegraphy is not a me for the dealers of conserve editor

the public at large. We want cheese telegraphy, and to get that we are convinced that nothing about of the assumption of the intens by the decremental three being run of the telegraphy of the convenience of the telegraphy of the convenience of the telegraphy of the convenience o believe A dispatch precored to embods

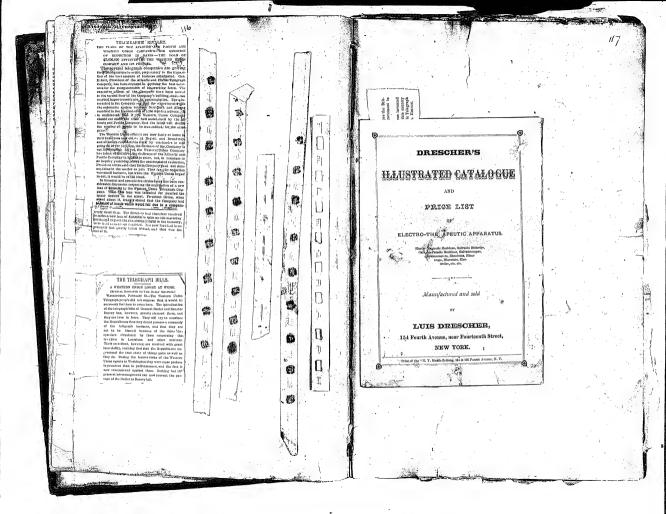
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of the Company. Opposition lines were speedily rendered powerless.

specially randored powerbons. A few of powerbons and the state of the an instance which ought to be fresh in the public mind, as rerely has any conattacked or the person who sugffster is no recklessly missepresented . hintel ligence of ordinary or extraordinary events was colored to correspond with the oniplous of the Associated Press, Parts un which to base sound views on important social and political questions were Who difficulty obtained in time to be of his the laure involved. Mr. Albrigative Alabama offnirs, stated, while the Butter additionated Press over culted on anyour the inate ity members of that Committee in Alabama; yet the news sent to the country seas represented as coming from the Com-

be sont over the wires. The Atlantic and Pacific Telegraph Comnany, in spite of t carffuence of the Weston Union, has succeeded by securing im proved telegraph apparatus and by skill-ful management to force the old mounday to reduce its high rates, and we trust that the Efficient opposition may be maintailed. Though hampered and discouraged in many, was by the Western Union, the American Press Association has striven and auccessfully to collect and distribute intelligence to journals not connected with nce to journals not connected with hat repeatedly received words of heatty-praise from the independent journals of the equippe

the facts obtained at Mobile was refused to

ountry. Preis compact would be unser the whole passage of the Butler bill; and the whole strength of both of these organizations would be brought to bear against the bill Colderest it. But whether the present tori to becure anything like impartiality in the treatment of the public by the War ein in will be successful or not, be made by the agitat raids entiteating the people of this



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Cable Telegraphy. To the Editor of the Scientific American :

- Marchel Hologope

In your last issue you print a paper read before the British Association by W. K. Winter on an Improvement in cable telegraphy.

Allow me to state that the principle shown was invented by myself and patented both in England and this country some three years ago. It is used by the Automatic Telegraph Company of New York, THOMAS A. EDISON. Newark, N. J.

REIGHENBIGH'S EXPERIMENTS -ODIO

(2017).

(1852)—List The Rame (1852), P. 129, over the purposate observed. It has expectionally a convert purposate observed. It has expecting a convert purposate observed. It has expected as the convert. When the convert. Were the best better than the convert. Were the best best better than the convert. Were the convert. Were the convert. Were the convert. When the convert. When the convert when the convert. When the convert is to come a term to great which the old-like, that only seems people and the convert that the convert

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PHOTO-ELECTRIC ENGRAVING. BY JOSEPH LEGFOLD.

Director of the National Engraving and Photo-Electric Engraving Institute at Lisbon. I be not propose to speak of much that is now on the present occasion, but, as the title of may rapper indicates, I mu going to discuse a nuclei which is already twenty years old, but which, despite jet nee, and the fact of the inventor and his process, has not yet become strong and matured, but is still in infance.

process, that most seek years actions and that process that most seek year actions and matters, he is faithful in this findings, process actions and matters, he is faithful in this findings, process and the process action of the process actio

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of energy and skilled invention, the centre were powerbust
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I have to acknowledge most heartily, especially those of Dr.

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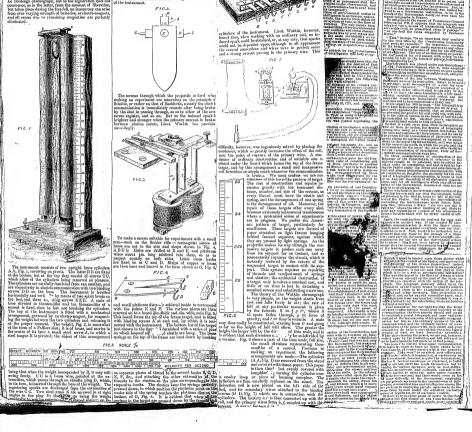
325

NOTES ON A NEW METHOD FOR THE ELECTRO-CHEMICAL MANIPULATION OF OILS AND OTHER NON-CONDUCTING LIQUIDS.*

BY W. STRONS, P.C.S.

FIGURE ALT PERSONNER OF THE ADMOSTRACE PROPERTY
* Paper road before the British Association at Belfast, optomber, 1874.

by the electric current; and seeing that A. Crosse, in his experiments, formed crystals of such holder as rilles and subday, I that thought necessarily a De Morgan paradox, to optoe that even yet a way may be utilizately found to constrain cory carison to congoal into concrete crystals; Marshoppi, April 27, 1871.







ders.	with the points E and P. The various pieces are the
mical	perceved on to a board hin thick and dis, wide, as in Fig.
end-	This board forms the top of the frame target, and is fitt
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what	nected with the instrument. The bottom bar of the targ
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y still on separate pieces of threa	d to the several I	ooks B, C, D	, i



cylinders of the intrusion. Licet, Watkin, however, found that, when working with an ordinary coil, no induced space could be additated, or, at any rate, tleat sparks could not be depended upon, although to all appearance the revent connections and wires were in perfect order and a strong current posing in the paimary wire. This



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lishes it.

In fact, your committee believe that a comparison of the cylis to be remidded, as set out in this report, on the liver committee sources that a competition of the origin to a residently as frome to me made to some the committee to seven in a resident of the committee to seven in a resident sources and control substantially all of them, and these ored in relation to the control profession of the bill are only to be control even in a relation to the control profession of the control pr

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that their arran generate with this association had been suittined through the action of the Western Union Georgany, and the following action, and Jan-uary 19 from the office of the Press Association at Weskinsten, was nointed out as the easier:

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a great deal mode (route) in store see num and ne-company.

The writele was yetset on Torontay, and on Friday
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D. Somewille, Greatest Manager of the Pross As-sociation, that it would be impossible to a suttain,
the supply of news.
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"Germinia", was the rophy; "I can tell you as noted. Until Jensory, 1851, the mentioning more than the private germinia priors in Pittellang, Westerlang, in-dimension, and in Pittellang, Westerlang, in-dimension, and in the Audio, Telegraph Company, At 1884, Univ. Assert, the Western Dirick Lossed these write, and our association had no resource but to appendix to the best terms to could got from that

massining for the leest terms it could get from 'tan'.
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"Was not this cause of complaint a surprise to year" sectainly had not anticipated it."
"How long after the publication of this (handlar him its above quoted article) did you receive notifi-cation of the dile infimures of the runtract? "The next day lead one on Tuneday."
"The next day lead one on Tuneday."
"And when was the construct to be discontin-

"Un the following Statushar, We worked to No. of secondar"Un the following Statushar, We worked to No. forten, requesting thin to produce the arrangement at
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of the state of t "the re-war." "Some recount of that trouble has reached our offer, what negatiations took plans? in the experience of the control of the cont cor."
"Bid not Mr. Maken, the oditor of that paper, clarge that Mr. Otton's object pictury was to force this to take his news from the Associated Press?"

simply the way had rever from the Autocardad Creary. The Alexanders Heat speak for the Emericine, The Alexanders Heat speak for the Emericine, The Alexanders Heat speak for the Heat State of t

A TEASCRAPE WAR AND LOWER PRICES.

A Transplant in team near security in [Figure the Springsthic Republican,]
Lay Gould's on annital seas spaces on for, personally, so rediring a one. He does not make as much notes in the world now as no old when Jim Fish next it has no old more as no old when Jim Fish next it has no old more as no old when Jim Fish next in the north new reasons are dufficed while the his

are different to the close before the man anomaly and the close before the

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"On Saturday we published the statement of [*Con Saturday we published the statement of Ly. W. B. Gomerville, super-intendent of one of the local news associations, respecting the action of Mr. William Oreon, of the Western Upon Telegraph Company, which have a moral that the neithle should not overlook. It stems that the Western Upon Harden and asyeget, through L. Criten, to send departeds of One thousand my often, to seem despatement of one those and words per diem to certain appears in Wares, ing, Pattsburg, and Indiananolis for \$11 per week each, the minimum, however, nover to fall below \$130 per week, or tife equivalent of ten newsmaners. It appeared that the new ber of papers served under this arrangement fell to sight, but the Fress Association continued to pay the minimum price agreed upon, when all of a wudden Mr. Orton summarily broke up, the arrusagement, and refutued to seed any more departches for the association. It superaved that there was passed over the Western Union likes, for this suscelation, a desputch in some way reflecting upon Mr. Orton. 16 was explained by Mr. Somerville that the remarks was individually and the summary of the summary message was innevertently sent in his absence by one of his subordinates. No matter : Mr.

by one of his subcollents. No matter 1M, offers took in an epremial afform to hisself, and promptly discoultness the service. Afform to hisself, and promptly discoultness the service, which is not because the service of the partial part of the partial partial part of the partial partia pt minu ones who will mis ones. If the stockholders place it must be apparent to the stockholders of the company that its affairs are not operated in their interest, but to satisfy the personal captives and whims of Mr. William Orion. And the public can now realize the curious nature of the management of this commany, which

stilles criticism, by high-handed outrages on those who offend it even insubvertently. If the press of this country were really "free," as it to often yearst, the whole nation would be rigade, with indipendent at the attempt of an important of the company time to act to the observation of the company time to act to the observation of the company time to act to the observation of the company time and the com-let insubstitute of the company time servant has to begin time of one of the norm of meyes to this part of the company time of the company time of the picket or temperature these depreted of newsytotific and nice, and may by a curves act or oppression upon eight or ten papers thus deprived of news to stiffle fair criticism upon his actions. For be it ror membered, these papers are not allowed to get, news from the Associated Press, there being at news from the Associated Press, there being at present is other telegraph company from present is other telegraph company from which they can receive news, and the result is that valuable properties are injured for no reaction which we have been supported by the press of the present units of the

The Western Union Telegraph Company has announced that after to-day the rates for mesamounced that after to-day the rates for ma-sages between this city and Boston, Albay, Washington, and all intermediate points will, be retired to an equality with those of the Albantic and Pacific Company. This reduction rates, and is an longity per cent, of the old rates, and is an longity per cent, or the old rates, and is an longity per cent, or the old rates, and is an longity per cent, or the old rates, and is an longity per cent, or the old rates, and is an longity per cent, or the old rates, and is an longity per cent, or the old rates, and is an longity per cent, or the old rates, and is an longity per cent, or the old rates, and is an longity per cent, or the old rates, and is a longity per cent, or the old rates, and a longity per cent, or the old rates, and a longity per cent, or the old rates, and a longity per cent, or the old rates, and a longity per cent, or the old rates, and a longity per cent, or the old rates, and a longity per cen property to answer it by doubling the number of words which will be transmitted at the of words which will be transmitted at the present rates. This the comprise an easily ac-ford to do, since it possesses patents which moder the cost of telegraphing iffey or a hundred words hardly any greater than the cost of telegraphing ten words. These reduced rates on the part of both companies will of course be on the part of both companies will of course he extended to winterer points are reached by the wires of the Atlantic and Pacific, and we shift thus have clean telegraphy throughout the country. The Darty Gezenic can recall with mine the fact that shows of the pressic and the country. The Darty Gezenic can recall with the country of the pression of the pressic properties of the pression of the pression of the telegraphy. There is no doubt that in those, which are now promised. The telegraphy is which are now promised. The telegraph is destined to become as cheap a means of com-munication as is now afforded by the mail initiation as is now anorose by the man, and it is quite pessible that before many years telegrams will entirely supersede letters, both in private and in newspaper correspondence.

LOVE AND VALENTINES.

VALENTINE TO ORSON, ORSON TO VALENTINE AND GREAT MEN TO EAGH OTHER.

AND GREAT MEN TO EAGH OTHER.

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TO POKERINGA, PROM ROBERT SCHENCE. Though the mystical ford is unbroken That binds my affections to thee, How cruel to publish the token I sent thee of love and d, p.

hough aged, the youth is before mo: Though fall, I can nove he blind; bough broken, a straight will reacore mo. Or three of a similar kind Your wealth and your beauty amored me: I came, with my love and my pack.
If your latter and known he dayoralated me;
I jud but a small one pair back.

about 1, through a stray preserving in the Fevil court of the court of

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Barbers are not delicited in the valentinian sense, and one of them sends the following to Mr. Tilton

and one of them sends the fellowing to Mr. Tilton It is cridical, sir, why you went your hair long; The cutton you need not defend. You ne'or in your life to a friend did foul wrong; And twere dandruff to cut such a friend, And twere dandruft to cut such a friend.

It will be thus seen how many classes and conditions of men send ratestines to each other, improving the heeting hour, and antiering reset to
throw at every liower. The katch terms to have
tim out, and cortainly the actichelers have does so,
or can it be that they send their effection to propie or can it be that they send their effusions to propie who keep their notes secret, and take the Tribvar's advice to "burn them, if you would not have the dropped secrets of your soul made the aport of attorneya"?

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alentine to send to the great lawyer:
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Much more seen a heteledshoy.

Can't you stop wid your questions, I wonder, Call you sup his your quemons, a work To play on the innocent old? Sure his counsel commits a great blander For to let him commit his own soif.

For to bit his committed lever a cell.

Or to the his committed lever a cell.

Occasionshy it imposes that to thoulsess man turns
(reading his propose the cell of
Monopoly's the soul of trade. Dear Semonton, and works no sill.

Zo us; thoug: trade itself about dile,
It's spirit would be thriving still.

Monopor's our great fewel.

It burns men's homes to give ne fuel. It terms incers nourse to give us rue.

Mr. Orden receives who avaientia from President
Eccort, of the Atlantia and Preside Tolgraph Conspect, it is shoulded yearprising how me is their content of the president
nume to an obsect
Door, dearling old Prex.
Tearlies to very duplox.
Wing don't you discard electricity?
With the duplox sinchine—
(You will moss what I ment
the matter you have such felicity)—
"bound to carr, loyer and to come of the such that the such t

The relegraph, it will be seen, in very pratigit-1-th, not done over you have you can be replained to those it is supported by the seen of the release it is supported by the release it is not a release in the release it is not a release in the release it is not a release in the release in the release in the release it is not a release in the relation to the release in the

sides of the Paper telegraphy patent and to thick of the proposed rightsilian analysis. Western Chilos monopoly. He had a two hours' interview with General Huster practically, and embestored to mu-vince hist tast by was rouge in presenting his shift and report spitches the press and subgraph "size," to But Derrest Butter, a good litteren, profited by the spitch suggest by N. Ordon to the extent of relatively spitch suggest by N. Ordon to the extent of relatively and a graph of the profit of the profit of the pro-lation of the profit of the profit of the profit of the analysis of the profit of the profit of the profit of the analysis of the profit of the profit of the profit of the analysis of the profit of the profit of the profit of the analysis of the profit of the profit of the profit of the analysis of the profit of the profit of the profit of the spitches of the profit of the pr

llions Orton, President of the Western

Mr. William Orton, President of the Western Fadon Telegraph Company, is here to upubli his blea of the Page telegraph patent and to this off

The most decement of supertances is a minute of the Committee of the supercolor, The minute acts forth that the dell is re-served, at it is one of some importance, and may pre-served, at it is one of some importance, and may pre-subly the demonstrated to resident interests and rights of the Committee of the

services in the second of projection interests and table for property of distribution principles interested in Consensus Principles and the Consensus Principles and the Consensus Principles and the Consensus Principles and the Consensus William Consensus Principles and C

Andress, and Mr. Grant, Secretary of the Angle-American Cubic Company, arguing in favor of that Company's

whether in favor of or against the peloxy candedled in this measure.

In order to enable this to be done I have decided to have the present bill in andvance, and to tender no advice to lies Majatty respecting it.

On the 18th of November Lord Commarven and Lord Indictio another brief dispatch covering the following.

inted Nov. 7, 1814, which he had transmitted to Sir J.

Indicate analysis first districts, contrast, but followed, but the size,
memory to the constant, "I want the the school within the region of the control o

We should regret 11 to the reporter will represent involvences in things its table.

Wouldington, by declaring that Gonz Butter Washington, by decising that Gray States, electron bill is only a stock jobbing operation, alloudd prove true. This is the invariable present of shysters, who have no arruments, with which; to resist measures, and able researt of shysters, who have no arrelated with whigh; to resist measuring, and consequently take, of calling names. MR Orion has abundant argumbans against ten flutter's remarkable bill, sindi-ought for be able from their. No measure affecting tracts correlated interests can be introduced into Congression.

interests can be introduced visite Copperations of the Legislature withboat Saving and the Legislature can be seen as of the Mills Street, Mil fare on the Associated Press, and "M grow further than any excepting the moving-pool governments have every rentured, in mode-tacking to violate the samethy of com-munications hold in trust by indigning the seizure of tolegraph dispatches. The prisance of a bill containing that the

feature would be a more disgraceful act time any which our capter has considered, no the provisions requiring telegraph communics to pro-rate and interchange link-ness, we see less cause of objection. Sub-tithey cannot be disentangled from the THE TELEGRAPH WAR.

THE LEGISLATURY WAR.

The investigation into the relations between the Western Union Telegraph Company and the press of the country still constnuer at Washington, but the shortness of the session has induced ton, but the shortness of the session has induced the Congressional Committee to heed the sag-restions of Mr. Orton's counsel, and the witgestions of Mr. Orton's commen, and the wit-nesses to-slay, as they were on Monday and yes-terday, are to be confined to the limitation of the resolutions passed by the House of Reprethe resolutions passed by the House of Representatives. Mr. Orion and Mr. Simonton when jird on the stand were permitted to give their version of the mutual relations of telegraph company and presonanciation with a view to excuse their past delinquencies, and to answer the ense meer past demnquences, and to answer the criticisms which have been justly made against these two monopolies. When, however, the other side wished to present their view of the other side wished to present their view of the situation they were used by the protests of Mr. Orton and his lawyer; and the committee, though disposed to be fair, were reluctantly compelled to limit the inquiry against the Western Union Telegraph Company to the Western Union Telegraph Company to the cases of partics who had been injured by the refusal of the telegraph company to transmit despatches because of adverse criticism upon its management and mode of doing business. However, a vast deal of important information was clicited from Mr. Somerville, of the Press was elleited from Mr. Somerville, of the Press Association; Mr. Summer, of the San Fraceisco Herald (which had been killed outright by the action of the Western Union); Mr. Wot. more, of the Alla California (which had more, of the Alla Calpornia (which has licen very seriously injured by the Western Union); Mr. Smith, of the Mercantile News As-sociation of this city, and others. These gentiemen clearly proved that the telegraph comately withheld important news, or refused tole-graph service except at such rates as would virtually ruin any paper that was compelled to

buy it. The official report of the statements made by the several gentlemen we have men-tioned will show that the Western Union has tioned will show that the Western Union has used its powers most maliciously against its critics. The trouble in the rate of course will be that the press of the country, which is so ready to crit-cise public men adversely, even unjustly, will suppress all the evidence against the telegraph company. That is a part of the contract be-tween the two monopolics. Mr. Orton to-day wickles a greater power than any other despot known to history. He has got the press of a known to history. He has got the press of a whole nation by the threat, and scarcely any of them dare tell the trath, or over give any information whole will reflect upon the delings of the Western Union. The Congress of the United States has been applied to, and by a test vote which has been taken it has been shown that thresh a majority of seventeen; in the Homos, and a

separations to free the press from this most

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maintenants and of the week dimensions and the string by with the wittens, [15], [15] regional tiple Test the wittens, [15], [15] regional tiple Test the week of the string of the stri

a majoray or seventeen in the Heist, san small but certain majority in the Scinte, is favor of the Telegruph bill, which will pixtle cally free the press and public from this dan

gerous : compoly. The only doubt in the way is the difficulty of passing the law at so late a period of the session and while the apprepria-tion bills are under discussion. But we have this Congress will not adjourn without dosg

WESTERN UNION TELEGRAPHISTORY

PROPERTY OF THE STATE OF T DENCE OF MR. SOMERVILLE OF THE AMERICAN PRESS ASSOCIATION.

WASHINGTON, Poly 22 The Sub-Constitute of

the House Judiciary Committee to-day concluder this manistation of Proclema Orem of the Windows Union Teleproca Company. It was should be subject the series of the Company of the Windows White I was a subject to the Company of the Windows White I will be subject to the Wastern Unifor Science of Ingellian to the Wastern Unifor Science of Ingellian Company of the Wastern Union of Science of Ingellian Company of the Wastern Union of Ingellian Company of the Wastern Union of the Wastern Company of the Wastern Union for the Wastern Union of Security and Wastern Union for the Wastern Union for the Wastern Union for the Wastern Union of Security and Company of the Wastern Union for the Wastern Union of Security of the Wastern Union for the Wastern Union of Security of the Wastern Union for the Wastern Union of Security of the Wastern Union for the Waste

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THE TELEGRAPH IN CONGRESS

THE MESORABLE DEBATE IN THE HOUSE OF REPRESENTATIVES ON GENERAL BUTLER'S

BECHNESS TATIVES ON HIERARD SPITZERS.

The following is motived from the report, appelled to the control of the

The first south of the second is a local second of the sec

chusetts [Mr. Butler] complains would have ma he rules.
Mr. Hatler (Macc.)—Would it have gone into the isotoristed Press;
Mr. Ellis H. Roberts—Mr. Speaker, 1 do not know

when the generous and the companion when the generous and manny way in which Congress cut regishate anch manny any in which Congress can be companied with the control of t

Hospit you did not know, unt that is way I exceed.

Jir. Hill H. Boertis—I told you that because I all the control of the cont Mr. Eine H. Roberts--1 will tell you when you easy your-real. Mr. Buther (Mess.)-- When I get an amswer I will lake my real. Mr. Julis H. Roberts--You do not browbeat any-

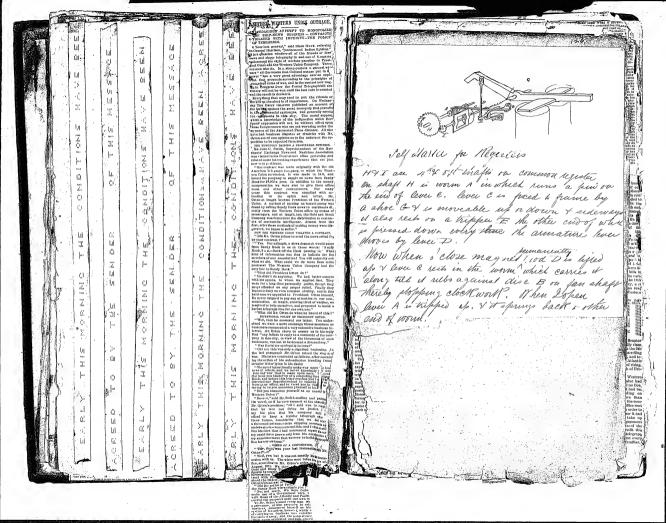
oly here, Mr. Hutler (Mass.)-No, not anybody; of course J. Ethis H. Roberts -1 am not a mombier of the we love City Associated Press. In Butter (Mass.) -1 did not ask you that. I asked out your paper wan a nember of the Associated

The May your peaper was a insurber of the Associated Mr. Kille JI, Molertes—My swapsper is not a mon-ber of the New York Associated Press. Mr. Blacker Characy—He is a sensitive of the Associated Press. He had to be a more subject to the Associated Press. He had to be a more subject to the Associated Press. He had to be a more subject to the Associated Press. Mr. Blacker He and the Mr. Blacker He will tell you when I get Mr. J. Blacker He will tell you when I get Mr. J. Blacker He will tell you when I get Mr. J. Blacker He will tell you when I get Mr. J. Blacker He will tell you when I get Mr. J. Blacker He will tell you when I get Mr. J. Blacker He will be any display of your reserving and to not tee use have any display of your reserving and to not tee use have any display of your

mpudence.

Jir. Hutler (Macc.) - Well, do not do it before
Mr. Ellis H. Roberts - Mr. Sprater, my pap
to select of the Associated Press of the State.

Jon d be. and Signal of the this



The Fire Alarm Tel graph Wanted. This morning's Herald contains a brief seiten of Statundyn night's first. It states the fire department was promptly on handle bed don't mention how promptly the Oily Hall bed was range. Seventions mandate and city Hall bed was range. Seventions mandate and city Hall bed starok. This proves that we cought to have the fire slamt designed in Albelh so much interest in taken. To wish the property in the contract of the c tice of Saturday night's fire. It states

Current of a small opposing local battery thrown through relay, throatst in its elecuti cashiss it to be adjusted to drst neutral-3 any current dies to loaks.

The sample server of the test of the sample
DR. MAREY'S CHRONOGBAPH.

THE FIREMEN'S STATE CONVENTION.-The

The use of the tuning fork for the measurement of very short intervals of time presents certain advantages which have led to its extended employment in recent chronographic apparatus. Our illustration represents a new instrument of this descrip-tion, which is an improvement on a device of M. Morendier, or rather is an attachment to the fatter for the purpose of enduring greater accuracy. M. Mercadier's invention is shown in the upper portion of the engraving, and consists of a tuning fork horinontally placed. One branch is attricted by an by an electromagnet. Its movement toward the core, however, breaks the current, causing the arms to spring back. This phenomenon is repeated in-definitely, throwing the branch into very rapid vibrations, each of which causes the contact of a platinum wire with a small platinum disk commupassoum were want a sman passoum and commu-nicating with the battery. Suitable registering devices were connected with this instrument which it is unnecessary here to describe, as Dr. Marcy found that its employment was frequently difficult on account of the extremely small amplitude of the vibrations. In order to remedy this defect, the above inventor places, in the circuit of the electromagnet of the tuning fork, a second electromagnet which naturally becomes magnetized or demagnetized coinwhich naturally accounts inaginarized or demagnatized coun-cidently with the first. The second cell has a single bobbin, and attracts its armature a hundred times per second. The

DR. MAREY'S CHRONOGRAPH,

carried by a spring. In order to obtain an absolute unison between the two vibrations, the spring is regulated to proper learnth by weene of a delicate screw. The armature bring attracted laterally, its sudden stoppage is avoided, and a much larger amplitude is obtained; and by means of a pace of quill, forming a prolongation, it traces curves correspondlog to hundredthe of seconds on a blackened surface. The electromagnet is carried, as shown in the principal figure, in a handle through which passes the conductive wires estadishing the communication with the battery and tuning fork. These wires, which for convenience are united in a lategia codd may be of sultable length to allow of using the

and attracts its armetute a marginal to the polar face, and is

instrument in any portion, for instance, of a room.

If it be desired to measure the exact neriod of revolution of a pulley and its variations of velocity during its rotation, the face of the wheel is covered with implicit, and the pull point of the chronograph brought in conjuct therewith, The tracing will show the angular movement during each one hundredth of a second, caabling the bhilder, for example, of a machine requiring delicacy of construction, to detect errors which otherwise might escape his notice. By the same means, suitably arranged, Dr. Marey is enabled to govern the movement of an escapement, and hence to regulate accu rately the operation of a train of wheels, an application of . raluo in telegraphic instruments.

Important Improvement in Fire Alarm

Telegraphs, Ose of the most valuable and important improvements which has over been made in the practical arrangement of the American Fire Alarm Telegraph, has recently been putented by Mr. Rosent Carres, of the Geld and Stock Telegraph Company, of this city. The fire starm telegraph, as most of our readers know, is worked in a series of metallic circuits or loops, the ground being only employed as a reserve, as it were. in case of a break in the wire. When a break occurs it has hitherto been necessary for a man to go out and a-rertain its location, and then to put on a ground at the nearest signal box on each side, until the break was required. Of course not only the entire circuit, but all the signal boxes on it were rendered useless during this time, which, under some continuousles. light amount to several hours.

By a very alight no dition to the machinery of the igon box, consisting an additional spring on the

MPROVED TELEGRAPHY

SCRIPTION OF ITS OPERATION—THE CAPACITY.
OF THE WHEEL SAID TO BE INDEPENTED IN OF THE WINE AND TO HE THE CONTROLLED AND THE STREET WITH A The sequence has become the property of the bits of the property of the proper Sympaces with the line of wire over which the mes-tages are telegraphed, so that when the wheels and the drium are in contact the circuit is complete and accor-tion russes over the wires. The dry paper which conront passes over the wires. The dry paper which con-tains the perfection definantees is a perfect non-con-ductor of cientricity, and when it is inserted between the little wholes indit the surface of the dram the circuit pla brokun. As the paper passes about, these wholes drop lightly depressions, touching the dram boundth, and uncil-acteforations, tending the dram bonath, and thus producing commentary currents over the wires, in the sume way that they are preduced by the ordi-nary Morse markine, but very much more rap-isty. Of course, as the perforations are os arranged as to receive the length of the connection, the resist-te the transmission of the columns of the contestion, the result the transmission of the ordinary dots and dashes of the telegraphus alphabet. The receiving manhine, which is combined with the transmisting one, also consists of an arm projecting over a drum, upon which the point of an iron pain is present. The pin consports with the hatter and the drum with the wires. Over this dram a stripp a paper wer with a chemical solution is made to passe. Wet purpor is a conductor, and no the dispatch comes over the wires the fission of electricity pass through at from the drum to the pin. Those flashes decompose the water in the paper, and the exygen slow set free at once unites with the fron pur, producing exide of fron

unities with the from pus, presiming exide of frees. This combines with the chemical substances to the puper, and the recent is the procuper of an intensity bine rats on the puper, and the recent is the procuper of the puper, and the puper, put is the puper containing the mersage is restricted on a cold as it leaves the drum, and is exerted to the convicts, who translate the telegraphic characters. As the messages are translate the initial with such extraordinary rapidity, the capacity of the wire is greatly increased, and 29 perforating imachines, such entities 69 words a minute, it is claimed,

immehines, much entiting 60 words in minute, it is olisted, would not even the write Daymad fit expandity. Would not even the write Daymad fit expandity of the lot in the state of the sta Spectorators and copylats. On the other hand, by the old Moras system, the amount of work which can be per-formed by a wire is limited by the ability of the operafor to transmit the measures, which cannot be done

Tab administrative dystem is not one of resent investion.

It was that tried in 1818 by Alexander Bain of Edministration was usable, however, to device any means for punching the characters readily, and the investion first

The time of the content of a policy and the investigation of the content of the c

To y HINSIG BY TRIKGRAPH.

Count two months ugo Mr. Dissa Gray, of least, a genterian well known in the electron selected in the selectron selectron words as maker and inventeely some of he missa valueble instruments now in pix, considered an idea which would be no extraordinary desired and idea which would be no extraordinary decerred an inca water when we are expensed only religious to f telegraphic science if he could only succeed in penellosily demonstrating it. Short as has been the layer of time since be first began his in here the haps of their since he first began his-depointment he his succeeded, almost beyond his-ovar anticlastics, he perfecting an inequalita-which will began sound by obstiticity over an un-besten current of catronillury longitud. The without the half of automatic repeaters. In the selfmary trainsimilate of messages over the tele-

graph wires to points at long distance, a message fresh relieve to points at long distance, a message is generally repeated by automatic-working instru-ments about overy 500 miles, in order to requir the ments about every 200 miles, in order to renow the outrest in Apoctoristic, Mr. Grey has al-tendy, thousand the armonic which also dis-tinctly solution at the receiving point over an unbroken elecuted 2,000 miles. This is, more prop-city apositing, a discovery—out on invention. The And the second of the second o

NEW INVENTIONS IN THE SCIENCE OF ELECTRICAL TRANSMISSION.

FOUR MESSAGES SENT SIMULTANEOUSLY ON MESSAGES SEAT STATEMENT DIRECT TIONS-MUSIC BY TELEGRAPH-TILE-

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Mewath Smelting and Refining Works.

ED. BALBACH & SON. 233 RIVER STREET.

Remark, A. J. One figured of Felicium Ore girld in Telescium 5- Die, THE TELEGRAPH MONOPOLY. INDIGNATION OF THE COMMERCIAL

COMMUNITY. COMMUNITY.

BOW NEW YORK MERCHARTS REGARD THE OPPERSIVE ACTS OF THE WESTELLS UNION COMPARY—BRITH AND GROWTH OF THE MONOPOLY
—A BUNSTROUGH DEED OF INJUSTICE—HOW A
COMPATING LIFE WAS SILENCED.

THE TWIN MONOPOLT. 20

VIEWS OF EAGING JOURNAL.

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NEW INVENTIONS IN THE SCIENCE OF ELECTRICAL TRANSMISSION.

FOUR MESSAGES SENT SIMULTANEOUSLY OVER ONE WIRE IN OPPOSITE DIREC-TIONS-MUSIC BY TELEGRAPH-TELE-

Mewath Smelting and Refining Works.

ED. BALBACH & SON.

233 RIVER STREET.

Romark, A. J. One figured of Felician Ore girld in Felician 5- Dio, THE TELEGRAPH MONOPOLY. INDIGNATION OF THE COMMERCIAL

IOW NEW YORK MERCHANTS REGARD THE OP-PHESI-IVE ACTS OF THE WESTERN UNION COM-PARY—BIRTH AND GROWTH OF THE MONOPOLY —A MOSSTHOUS BEEN OF INJUSTICE—HOW A COMPETING LENE WAS RELEXCED.

The practical business men of this city may be dividend into three clongs:

1. Those who are examperated at the Western Union telegraph menopoly, and are outspoken in

1. These who are exempted as the Western Police (singuish seempel), and are obtiqued in the control of the cont

THE TWIN MOZOPOLY. 130

VIEWS OF LEADING JOURNALS.

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companions of the control forms of the control of t

MR. ORTON'S PLEA.

Mr. Orton has been in Washington bust engaged in the rather difficult work of covincing Congressmen that the bills introduce by Secutor Dorsoy and General Butter in relation to the telegraph are merely intended to bear the stock of the Western Union in the interests of the Atlantic and Pacific, which end, interests of the Atlantic and Pacific, which each sub-ablants, integration along a compilative, and a sub-ablants in the pacing and a sub-ablants and a sub-

pression of the stock market. It kept part is its fluctuations with the fluctuations of links Shbro-a stock which certainly has not been influenced by the introduction of any bills in Congress. The following table shows the vari-ation in value of the two stocks from the 18th; of January last to the 12th of February, a of the effectually refutes Mr. Octom's assertion this the Dorsey bill reduced the value of Western Union from El to Th

From Andrew Workers Andrew State Sta

at 12%. The next day it rese to 73%, and to-day it is quoted at 73%. So, too, the Atlantic and Pacific stock has declined instead of rising, and new sells at 23%, though on the 7th of Feb-There were abundant reasons why Western Union stock should have declined in value had

no rival company entered the field and no Concome known that the new building on-Dey street and cost \$500,000 more than, the amount originally estimated; that the company was paying immense sums for office rent in all parts of the country, and that in order to make its dividends at the end of the year it had state is described by the state of the state fall in the company's stock, and to credit this fall to the introduction of the postal telegraph bills is simply to ignore facts with which ever one, including Mr. Orton, is perfectly familiar

The resolution proposed by Mr. Dawes, directing the Judiciary Committee to inquire into the alleged witholding of news by the Western Union menopoly from the American Preca Association, will of course include other cases in, which necessary have been tyransically developed to the control of the course of the

scolation, win of course solution ochieve caste Jawich neveropera-base local yrazimoli praviola di genenivola di genesi della propositioni di solutioni di geneti della propositioni di geneti della propositioni di solutioni di sol Telegraphic matters here look prombining. There seems to be a reasonable certainty that the Yelo-graphic bill as reported by General Batter, and by Mr. Dorsey in the Senate, will be passed by this Con grees. The feeling spainet Western Union was very clearly shown by the reception of Mr. Dawes's resolution in the House, That hody very preceptly passed the resolution instructing the Judiciary Committee to send for persons and papers. The Western Union people have told so meny lies down here to members of Congress that there is a strong feeling against the company, and it is not unlikely that a permanent committee may sit during the recess of Congress to take oridence upon telegraphic matters, and submit the result of their delaberations to the next Con-Seress.

the desiration and the state of
Interesting organionts were made before the popular Interesting organizate were made before the parameters of Patents to-day in generate to tagget enter the quidruplex feathened in received by Mr. Repulsion multiplying the capacity of tolerand wired. Bounder Conkling represented the Order Tulion Company, or there electrician, George D. Prancott; and J.H. B. Luttobe of econtroller, George IS. Prosect; and J. H. Littone of Baltimore the Automatic Company. The latter compa-ny asserts that Mr. Edison, the investor, has needed to ny asserts that Mr. Editon, the inventor, but inventor, in inventor, in the II. Harrington, in representative, a two-thrift interest in all the interest pakes Mr. Present pleads the validity of the interest pakes Mr. Present pleads the validity with the interest of the interest validity and the interest of the interest validity and the interest of the interest validity and one; that wheth in closes, the Commissioner of the validity of the interest valid valid the interest valid the interest valid valid the interest valid vali

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lution proposed by Mr. Dawes, direct-WESTERN UNION IN "THE STREET."

COMMENTS OF THE PRESS UPON THE NEW

(From the New York Herabl.)

(From the Now-David Normal).

The Western District Consequence on it is a manufactured to the property of the property of the second of the se

Description of Theory A register of the control of

The stockholders of the Western-Union Tele-graph Company will be surprised to learn from graph company will be surprised to learn from the Those and Hereld this morning that a new lean is to be negotiated for the benefit of that, institution. It is only a few days since a lean of \$5,000,000 was affected to take up besude the this year for something over \$4,000,000. But the result of the perceiption will leave once file result to one accommon will have one \$100,000 in the treasury of the company, it is a fair presumption, for the purpose of paying dividends. But if the Times is correct, the additional loan has a curious history. It seems, according to this account, that the company tried to mortgage their new building at the corner of Dey street and Broadway, but it was found that there were legal difficulties in the case. As the company represented property in every State through which its wires ran it would be necessary to take out a mortgage in each State, and the total result would not be satisfactory to those who had money to lend; so it seems that the company is now compelled to come upon the market for another loss. There has ne yet been no offi-cial statement by President Orton of the excess of expenditure over the estimates in connecor expension over the estimates in connec-tion with the construction of the Dey stroot building. It is understood to be \$800,000 more than the \$1,500,000 originally devoted to the crection of the building, and it is also under-tood that this even does not include the litting up of the new building. The ways of this con pany are mysterious and dark, and it is no wonder that it is so favorite a foot-hall for the gamblers of the street. But what is this new loan for and how large is the amount? Who

THE TWIN MONOPOLY HOW THE MARKET REPORTS ARE CONTROLLED

BY THE WESTERN UNION TELEGRAPH COM-PANY. As a small, the anomalous Peres, the request from a Washington of the same complex on the red to the first which were all of density as the red to the first which were all of density in the two Theorems and the same control of As usual, the Associated Press, in its repquotations as there were news associations. The quotations of the Associated Press, being only one

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not. This power too wast to be controlled by any our-position.

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HISTORY OF THE WESTERN UNION. History of Alle was able to report a benefit of the benefit of Jane, 1872, gives a complete blatery of the Western Union Telegraph Company;

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Gricuite, and the Southwestern Zelegraph conJa July, 184c, the final absorption of all those literatoric place, and they were hurful without the mustbeen place, and they were hurful without the mustplace. The Daired Extent Conceptual of States of the Watern Conceptual of States of the St

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Johnson was the first to broak that allease by the first remaint, "it works." When men who fall minimum that the law is not seen to be the more than and corry other nearly the seen that the seen that the seen that the seen that most reals of the most made and the seen that the seen that most contained to the seen that the Johnson was the first to break that allenes by the

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In an interview with a Tribune reporter yesterday Mr. Orton admitted the unsightliness of the telegraph poles, and hinted that he would be willing to place the Western Union wires be willing to passe the viscers of the interpretation of the city would pay half the cost and his company would have a motopoly of the privilege. This is rather cool, even for Mr. Orton. The Western Union Company. is now occupying a very large amount of city real estate for which nothing is paid, brides disligating all our best streets with its forest of ugly poles; and yet Mr. Orton thinks that half the cest of doing whot the commence that half only poses; and yet Mr. Orton thinks that half the cest of doing what the company ought to be compelled to do by law should be paid by the city. Mr. Vanderbilt succeeded in a somewhat the barrollous areas. similar scheme when he compelled the taxpay ers to pay half the cost of his cosing to kill them at every street crossing his milroad back, but such a specimen of sharp practice cannot surely be repeated. 11:1377

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Usak ti-Ney Yoold, lies' broken: Chanagopided, — Resusses of mental vision, Myssas, Gorselphi haid, and indicated times to degrees stock and days, and indicated times to degrees stock and of the second stock of the second stoc

71 CL 37 THE MAGNETIC GLAST.

[10.45 § 2.4 THE MARKHETH GIANT.]

From the Personnen (Parison).

The Personnen (Parison) and the Personnen (Parison).

The Personnen (Parison) and the Personnen (Parison).

The Annual Internation and enterprising country.

The Annual Internation and enterprising country.

The Personnen (Parison) and the Personnen (Parison).

The Personnen (Parison) and Personnen (Parison).

The Personnen (Parison) and Personnen (Parison).

The Personnen (Parison) and Personnen (Parison).

The Personnen (Paris

constat. WESTERN UNION TRIMMING.

The Western Union Telegoral Company has been claiming credit for the reduction of ice charges. In point of face, heavewer, this reduction of ice charges. In point of face, heavewer, this reduction is consident to routes where the competing liess of the Atlantic and Peclific Company are in use. Thus the Wostern Union has reduced its charges on messages sunt terroun this city and Possible-specific for the rescent that the two cities are connected by a rival wire. Dis thetween this city and Possible-specific, review where But between this elty and Poeiskill, a route where the Western United has no compellor, the old rates are maintained. The meanepsly will show no favor to the public except upon compaling, and disserve no credit for reductions which a rival company has compelled it to make.

[27]

The Nundescript Edison Organ's Blackguardism.

We have received several communications for pulslication indignantly responding to the fifthy blackguardism and falseboods of the newlescript Entsox organ in its attacks upon THE TELEGRAPHER, its 9 publisher and contributors. Our space is too valuable to be occupied with these, and while we are grateful to our friends for their kindness, we would merely Hey that, as for the binekgunrdism, "It is characteristic of the nublisher of the anadyseried; and as for its

falschoods in regard to the circulation, etc., of the maner, there are observatoristic of his conference and principal assistants, contributors, and boon commonlous. especially the great professor of duplicity and quadruplicity, Eurson. They don't injure us or Tim Tunn-GRAPHER, as their uniques is well known, as also their foldity.

We have already occupied too much space in replying to the fifth of this disreputable publication in regard to oneselves and the paper. We cannot here after condescent to notice any personal attacks from that source. So the publisher, the professor of dualicity and quadraplicity, etc., can fire away at us to their bearts' content, and to the full gratification of their low lived and contemptible natural instincts and char-

JAY GOULD AND THE NEWSPAPERS. An arent of the Sah has been visiting Jay Gould

An agent of the name and occupating a young at his lift his remus credence, and the result is given in an interesting letter, to that paper the morning. After making the somewhat surprising statement that the beatement floor of his residence is tilted with an army of the way obvice who, carroscaded. by stock indicators and dials, give the place the ap-pearance of an exchange, the writer precede to describe Mr. Gould's wonderful lack of knowledge of what is going on in Wall atroot. For instance he

what in gaing on Wall attents. Per instances of the control of the scaling page of the other on the control of
The variety then recourse a number columbianes, at that wise:

I was that wise:

I was that wise:

I was a substantial to the substantial that is surjected, and not a first the surjected of the property of The writer then recounts a singular coincidence

.....

Senator Bayard declared in the course of de. bate in the Senate last Monday that President Orton, of the Western Union Telegraph Com, pany, receives an annual salary of \$20,001. When we remember the cost of the new tele-graph building in this city, the quantity of worthless bonds the company has to carry, and the enormous sums it pays out for salaries, we need not wonder that Western Union stock is the football of speculators.

TELEGRAPHY. CONDUCTIVITY OF WIRE

CONDUCTIVITY OF WIRE.

There has been, especially of late, great activity in the favontion and development of apparatus for increasing the capacity of telegraph lines for insines.

By the Sewation and development ages, and the sewation and development of great being free basis. They are all very well in him for beautiers. They are all very well in the property of the p

RISTORY OF THE RESCRIPT PREPARED

Dr. Glasstone recently delivered a course of lectures upon "The Cell and Its Effects" at the Royal Institution. The last lecture was

Dr. thisticon recently delicred a course of the curves upon "The Columb Its Miletter" as decreased to the Columb Its Miletter as decreased to Theory and the Columb Its Miletter as decreased to Theory and the Columb Its Miletter as a support of the Columb Its Miletter as the Columb Its Miletter as a support of the Columb Its Miletter as a support of the Columb Its Miletter and the Columb Its

THE WESTERN UNION MONOPOLY.

OPINIONS OF PROMINENT MERCHANYS—HOW THE COTTON AND PRODUCE DEALERS WERE FORCED TO PROTECT THEMSALVES—IN-COMPETER HARKET REPORTS—A COL-BINATION FORMING TO RESIST MR. ORTON'S SOLVING.

POLICY. Mr. Orten inys that the efforts now being made in Congress to secure from trade in news and chasp trigging to secure from trade in news and chasp triggingly and observed from trade in the war description of the secure from t

"You condescendingly venolunted them by the grea-molecheopy."

In the condescending the control of the condescending of the condescending If market reports are furnished premptly Hr. Octoo is to be thanked for it, and if they are not what our be done about it? The claim is made that its ra-ports are guthered by intelligent agent, but this is

not borne out by the facts in the opinion of the THE WANTERY PRIOR BUILDING

The control of the co

lines but bow to do it. Phase have breat tailed of, and a plan for a greated movement is a streamly regioning to take shape.
PROFECTIVE FOLICY OF THE MERICALTS.
As a practical instance of disself-section one may row distribute the builted monet do the Credure Exchange a suries of special despectives from M. LUMA. The total of the ordering gives no uncortain

indication.

Mr. F. H. Parker, a member of the Committee on Mr. F. II. Parker a member of the Committee on Information and Eintistics, and who can as its acc-retary, rotued to speak for jubilization about in lumediate relations of his consustice as represen-ing the Exchange in this department and the West-ley the Exchange in this department and the West-ley the Exchange in this department and the West-depentable from Rt. Lossis he said, "That is an ax-periment. Is followed on the success of the sposisis from Liverpole." om Liverpool." "Why did you cetablish special reports from Liver-

17.4 "Berguss we found the Gold and Stock Tel-at-"Spiriture via a beginning of the first Period Company in come to smith the Company in come to smith the Company in come to smith the Company in come to the company in c

a man who makes it aspecialty; an experience

connected reporter."
This was not extinosity, as thought the province bestined to commit the Exchange by agriculture bestined to commit the Exchange by agriculture by the province of the province of the province of the province of the province, were less garacted in their results.

"Existed of Annual our Time Province to Monte or Composition of the Province of the

om."
Others took refuge in sarceson. In the Products Exchange a gentleman, who refused to allow his name to be used, said it was because he had no cause of complaint arrives the Western Union. He thought be was very lucky to get any reports at all.
What did his questioner expect? Did he surross he

was going to got any accommodation or attention to business out of a rich corporation; It is certain that the universal opinion in all of the It is certain that the universal opinion in all of the proof opening-cal course in this city is adverse to the proof opening of the course opinions suight be governed by the changes, where opinions suight be governed by the changes, where opinions suight be governed by the changes of the course
send offenderheite with the service of the given to the control of the given to the give

San

THE TELEGRAPH WAR. [Frees the Bushleplen Start]

DESING THE TELEGRAPH WIRES. A SYSTEM IN YOUUE IN EUROPEAN GAPI-FALE.-THIS QUESTION OF COST.-UNANSWER-FALE. ARGURENTS AGAINST THE USE OF POLES IN CITIES.

POLES IN CITIES.

The great buglears concently half up before the respect to determine the remainer half up before the respect of determine the remainer that all city received to the last lander ground at that it would inverte a resisons cost to the companies. This is not true. The cent would be most lighter than respons would imagine, as all was the respective the respective the respective that the respective the subject their consideration, and the results, arrived at have agreed vary accept [19].

tion, and the results, experted at his to seriord vary of the control of the cont

resident and hoofes upon the attores maker, in an time is required. In Lordon a small ray of users are now specially last Lordon a small ray of users are now hope in the control of the principles of the control of the water justice. In the discrimination of a sixth patter, high about slight or testive inches bread are haid next to the control of them whether the water to first water. The form their positions by the weekness man disposition as the control of the control of the sixth patterns. Then a titled position as the edge of the siderable. Then a little dogs of each standard was upon the partners the string of each standard was pure to the partners that the string of the side of each standard was string as the side of each standard was replaced. All sixtee encoders as a side at sight. If all the lines are depth to the sixtee encoders as side at sight. If all the lines are depth to the sixtee encoders and the side of the sixtee encoders and the sixtee encoders and the sixtee encoders are found at the convention to the sixtee encoders are sixteed to the sixtee encoders and the sixtee encoders are sixteed to the sixtee encoders and the sixteed encoders are sixteed to the sixteed encoders and the sixteed encoders are sixteed encoders are sixteed encoders and the sixteed encoders are sixteed encoders are sixteed encoders and the sixteed encoders are sixteed encoders are sixteed encoders are sixteed encoders are sixteed encoders and the sixteed encoders are sixteed e

mess of undergreeund wirely made after curroful cal-icalation of all expenses, is that any undergreeund line of tire or more wires can its hild and kept in re-pair for five years for bean messy than the same-number of wires attached to poles. The cost qui the whole is not to a released more than divige or each higher than that of constructing lines in the ordi-

mry way. The companies are opposed to the sacrifice of the The companies are opposed to the sacrifice of the optical surveior in the spectra of the related 1900s, a regular anything the spectra of the related 1900s, a regular anything the country, as not \$350 per sile. On the 1900s and the related 19 phere. If the change were once made no company

phers. If the change were concluded to conspany would return to a full-up write in the time depending. It is held as a great that where to the undergoding—a permitted to passed in the whole where the properties of the properties of the time of the passed at the street corners, where traps are locate analogous in construction and use to those parme for acceptations to Manuel and the

ow through the sine protection to get at it fel. Lo zine bezes are equis-sed in iron papes, obviatio

of CII may be stated in this connection that mure on and it is may be stated in this connection that more one, takes note may be used, hereoness there is no tensals unless upon it. Its conductivity is not known and more as great as trees. In the matter of expense it is calimated that a uniper who which costs SIT per 'llu is worthen much for selectivity jumposes as in on wire which costs ST per mile. The main difpity to be encountered to perhaps the tundana were or the known insulating substances to mad disintegrate when placed under: a will always probably compet the named log from tube.

10 THE MAGNETTO GLAST. NEWS OF THE DAY.

SECOND EDITION.

TRLEGRAPH POLES IN CITY STREETS.

AN INCREASE THAT BODES ILL FOR THE FUTURE—HOW THE WESTERN UNION COR-PANY REGARDS THE NUISANCE.

PANY REGARDS THE NUISANCE.
The telegraph pole of the future will be some-thing appalling. If it is allowed to grow unchecked, The cattle-born Tisans having got hold of Jorve lightning will soon be attacking between itself with their poles. Pyles of take years have inserved in apparament, but they have also grown anormously their paids. Privace flats years have instructed in a set likely to see will more. Yearshy years and see likely to present ill more. Yearshy years and see likely to present in the privacy paid objects only the privacy paid objects on the privacy paid objects on the likely paid of the privacy paid of the p

deposited lifty feet in length, showly at first and con-by one; that within they are after the close of hos-tilities leng lines of these tall musts were excelled. Since that time another or in telegraphy has passed ever our heads. Its record is found accordingly in a new tire of poles skirty fort high, and the rapid attribute of telegraphy in the most future are indicated to stage corotin of telegraphy in the most future are indicated to stage corotin of telegraphy in the most future are indicated.

by stray growths of telegraph poles seventy, eighty and even alacty feet high, and in the complement design of the control of the and even muchy seet high.

It is the conjunction of all these different kinds of

and the role of the Western Union Company of Fulton street, near Broadway, ninety feet in laugting in said to have cost 8001.

is said to have cost \$90).

A custom leatener of antipathy to telegraph poles
has just been developed on the part of the Western
Union Company itself. A line of wires was run week
from John street, to be econiusted to the loft of the now Westers Union building, Doy street and Brund-way, Doy street is the continuation of John street, Hence it would naturally be supposed that the com-page wands consider its wires necessal Broadway and shoughts over the contraction of the contraction of the whose the wires once the shouldings in the top story. The fact is, however, that the wires were run along on two poles on the opposite shole of Day storyd, and them of shut proved serous the street to the oper-ture in the challeng which was provided for them. Now the huilding on the opposite side of the street is the Mercaville National Bank, and when the Presiis the Derenstillo National Bank, and when the Prosi-dest, Norman White, was obers one meeting and discovered them in position he made complaint. He assurably suggested that, the poles could just as well have here played on the opparite side of the street. Thu neigh he got on the past of the telegraph com-puny was that they did not want to run their wires reconsidered. derly unward, and he was ferred to be atent. What occult electrical reason lies hidden content. What occult electrical reasons like hidden is this exceed in exceedingly difficult for the ordinate in the content of presence of his building night, as it were, dwarf and therefore may the archeste effect of his tyle-

Tille -POWER OF THE TELEGRAPH. HAS THE PUBLIC ANY RIGHTS WHICH WEST-

MARTINE MENON MENOZOTO WHITE A MARTINE MENOZOTO
non-negative, nor can be a re-proceed to other host become orizon or review in the breacht to other host become orizon or review in the Day. Under Market Busperson Court., revenue or re-triction or recognition or recognition or re-triction or recognition or re-sponsibility or re-sponsibility or re-sponsibility or re-sponsibility or re-sponsibility or re-triction or re-sponsibility or re-prosessible or re-responsibility or re-prosessibility or re-responsessibility or re-prosessibility or re-responsessibility Labout as follows:
Labout as follows:
Labout as follows:
Labout 3. Growensor P.—The Western Union Company has had acroral suits in Obio. I can't tell
which one you refer to; but if I could I would not
summer a single quantity sheet it. I am a series.

f my clicuts.
Datay Characte Detective—Good afternoon, sh

Lowery, Grosvenor P. roturned to his sent and the rporter retired. The suits are converning the rights of ife telsraph companies under state laws, and are of vital reach companies under state laws, and are of vital moment to the public, and expecially of interest at the present brushe of the popular ngitution of the the present or and tolography,

WESTERN UNION MODESTY. WESTERN VINON MOREST I.

The was from any two lasts (was wind.)
The road to be Western Union Young about the Western Union Young about the production of the continuence of the continue

Specials building.

Looking at it in all its bearings, does not this above
Looking at it in all its bearings, does not this above
a high order of "cheek"; It is simply sublime.
MERCANTILA.

CARELESS REPORTING.

THE WESTERN UNION MONOPOLY.

THE WESTERS SINCS MONOPERA.

[From A Few Zolone Solies deversed.]

I From A Few Zolone Solies deversed.]

When the Wester Delice Telescope Company was the most aspectione, grangeless, and the Company was the most aspectione, grangeless, and done powerful if possible that the combined inducence of all the daily never pagent of the Vinesthated Press, Eart, West, North, wend South, are unduer contract to practicate don't was allowed to the Company of the

Commercial to memorial the Association (New York Conference of the Association (New Yo

The net income of all the Italian telegraphs that the total receipts were 89,262,633, showing

met autos on, 1815, was ekziokowa, salta the sale principal construction of the salta s countries. In this connection an analysis of the same figures in the last annual report of the Western Union Telegraph Company will be Western Union Telegraph Company will be interesting. According to the published report of the company the nee' 'would for edge years, from July 1, 1894, to June 99, 1814, was \$42,834, 585. Of this sum the streakfielders received as cash dividends \$2,82,83, 585.

The western of the company's indebtodness the further of the published of the streakfielders.

sum of \$2,501,503, making a total cash paymen-for dividends and interest of \$8,061,147. A for dividends and interest of \$8,006,147. A balance of the her profit, namounting to \$15,7 a \$4,000,000 and \$15,7 a \$15,700,000 and \$15,700 and \$15,70

\$14,982,997,59

Leaving a surplus of......

That is to say, while the Western Union man-ners fleered the public by their excessive turiff the schelcholers recovered only about at fourth of the net profits of the year. How much longer do the propiot of the United intend to permit a moneyal public their extertionate print from the University them extertionate print from the University them. extortionate priess for the isse of the tolegraph-wises; and how much longer will the stock-holders of the immediately examine satisfied with a system of the new profits out of the privacious of the new profits out of their hundred willing that Italy should have the willing that Italy should have the profits out of the new profits out of their hundred and better tolegraphic service than we have, capecially when the remedy is within our reach?

It is a well-known biological fact that the minute, july-like creatures called Gregorinide, when they reach the term of their individual life, become 'encysted,' or inclosed in a sect of integration,' while their internal substance divides into a number while their internal ministance divides into a number of small bothes called "paced-on-avicaline", by add-by, the cyst copings by nupries, and the paced-on-avicaline "paced-on-avicaline" and a superate faddivisional. All Schneider has discovered there is a remarkable exception to this mole of the cases, is the general Gragaries and Stylesholpicals. In the former, a number of tubes or ducts are formed in the cyst, radiating from the central formed in the cyst, radiating from the central control of the cyst, radiating from the central cyst. These sponducts, as be calls them, are, at the tim There specaducis, as he calls them, are, at the time of maturity, thrust out by way of oragination, and the spores pass out through them. The structure in Soharhyachus we do not stop to describe; but it is striking to find an apparatus of dissemination in these humble forms of life.

The best of the control of the contr

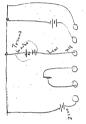
PARCIAL DEPARTE TO THE IAILY GRAPHICAL WARRINGTON, Marke 12.—The-day I horned of a remarkable decision of Commendation of Default and Market 20, but has not been made soluble bettefore. There were three applicants for insprovements in dupler telegraphy. Thomas A. Edition, Dillors and dies. It Provincia of the agelinean for improvements in depart subsequently written Dune Company, and gelinea and design subsequently of the company of date Edison's assignment of a half interest in them to Proceed at a subsequent period. A suit will be at once begun by Harrington, and

A suit will be at once begun by Harrington, and the case with carried that court, where it will be relate that he has reasoned entirely more the records hereon him, and that he has no nutberly to consider outstanding equities. The production of the court of the court of the post here of the court to which could deduce the court of the court, to which could not court of the court of the court, to which could not could be court of the court of

Photographic Properties of the Salts of Vanadium.

M. J. Gibbons finds that a there of paper steeped in a solution of a vanadie salt, and dried, gives, on expoure the highs, a good image soler the indusence of uranie salts.

Experiments on the Effects of Magnetism upon an Effective Discharge passing through a Rarefield Gas in the direction of the Produced Axis of the Magnetism M.A. do it Rive and E. Sarasin.—Not adapted for abstraction.



Commections of The.
AUTOMATIC TABLE

more

TEB. 3.47. 1875

Scrapbook, Cat. 1144

This scrapbook covers the years of 1874-1878, with the majority of items falling in 1874 and 1875. Much of the material consists of clippings relating to automatic and multiplex telegraphy and Edisons role in their development. Several clippings deal with the rivalry between the Western Union and the Atlantic & Pacific telegraph companies and their competing claims to ownership of Edison's quadruplex. There are also companies are comming Edison's amouncement of the discovery of etheric companies and their companies and their companies and their companies and telegraphs of Edison's quadruplex. There are also expenses the expenses of the discovery of etheric companies and telegraphs and telegraphs (includes, including some from Edison companies; a few notes and instructions by Edison; a varnish formula; a rare metals price list in Edison's hand; a telegram to Edison from Thomas Eckert business cards; and electrotypes of telegraph and other electrical devices. The volume contains appropriatively 190 numbered pages.

Not filmed: nine pages of electrotypes similar to those in Scrapbook, Cat. 1178.

no Telaphone April 1. 1875 THE TELEGRAPHER

A JOHENAL OF

in page 160 of Sobine's Electric Telegrouph, does the same thing in a perfectly feasible and effective article;

A SHEEK A PHEER

A SHEEK A PROBLEME

I NO SHEEK A PHEER

I NO SHEE

arrange five kept of a sending station, and connect them on that the lirt's key would send a current of the cells of battery, the covoids of reproduct the third fifteen, the fourth reserve, and the eithir treenpy-deve-smal two different ndjustments, so that the first key wend different ndjustments, so that the first key wend a operation relative theory of the confirmation of the instance of the confirmation of the confirmation of the is quite possible, by means of neutralified lead batters, and believe, to condition these polary and their less and believe, in combine these relays and their securities on that they may be recorded apparately with the property of the property of the property of the the green's become the difficulty of multiplicity the relative dispersances, and nature the conductry conditions of in-advantagements, and nature the collisies of in-advantagements of the conductive theory of the conductive that the con-quire currents of at least four different degrees of strength, and every particle despreader known that of the conductive the conductive three conductive the con-struction of the conductive three conductives, set, would be sufficient to interfere most sectionary with the dulty cause borment of instruments requiring such alcety of ad-

Those who are currons to see the number in which his problem of quadruple transmission has been corked out, will find a description of Bosscha's method in Dr. Scheller's Lik httmare at tree-level where in Instead of this saculted "discovery" being the "sa-stion of all difficulties in the future of telegraphic rience," it would be more likely to open upon entirely

or set of signessines.
One thing is certain, if the Western Union Company Our thing is certain, if the Westert I mion Company we going to "speedily pair in practice this new sys-tem," one of the first things they will find it resulted to do will be to pail down after old gless insulator-oud get their lines into a condition of at least dovern shortston in view tearlier. If they will do this it is quite possible that the amadraplex may yet become a practicable system on the induced number of climits

when the second will have even a superior to the second will be second will have even a superior to the second will be second will have even a superior to the second will be second will

TOOTHACHE CURED BY ELECTRICITY .- Dr. Bouchard, of Paris, says that toothache may be almost instantly arrested by a constant b titory current from ten cells. The positive pole is placed against the jaw, on a level with the painful tooth, and the negative pole to the autero lateral region, on the same side of the neck.

Pele-mical. The tallest and largest telegraph/pole in this city, perpaps in the world, is raised in Fulton-st, near St. Paul's Church, for the

WILLIAMS & PLUM Printers Stationers Blank Book Manufacturers 777 Broad St. Alene 1816 A.T.

The Telophone April 12 1875

A JOURNAL OF ELECTRICAL PROGRESS.

SATURDAY, JULY 18, 1871.

WHOLE No.

Original Articles.

"The Dutch have Taken Rolland!"

THE New York Traces of Pristar, July 19th, deve THE New York Transe of Yrishry, July 19th, there a camon to a description of what it terms. New remtions in the Science of Electrical Transmission, important of which was evidentify derived from Went Union sources. Some of the et tennent published which is their a deliberate distented for the trail telegraphic history, or else a most deplarable ignor if I, and output not to be almost departable in the of II, and output not to be almost departable. The first article is as follows

retry lists on some control of the property of ed it, "so preently as three vers ago." The asserts that this invention "instantly double-capacity of every wire that had ever been creed or course, every telegrapher knows this to be perfect sense, as the duplex, valuable as it is, is of affilted practical use except for through wires, and the tankly da not comprise one fearth the entire bull-tantily da not rempire one fearth the entire bull-tantly da not comprise one fearth the entire bull-markers, he tell one that "this year, like his Mey and it is objection—the unseeque could not be dropt universal to the control of the course of a reporter." um war station without the use of a repeater." But the new arraneomout broks all! "In o, smar it will quadwork the usefulness of the 1255 united of wise nead by the Woodern Reison Coup. "It is a near process of multiple transmission, by two messages team he sent simultaneomaly in the direction over the stane wire, and either message he dropped at any war station." Now, there tainly no creat modely in this feet. The appearat ceptible IV DS Ratik, of Virona, in 1253, and they could be IV DS Ratik, of Virona, in 1253, and they

ated electricians" not only "Leon litt.

the fators of electric velocity "but at good deal of the past in that seletire has also failed to

good deed of the pasc in that seteme has also taked to attend their attention. We wonder, also, if the somewhat notespothinesare to Mr. Chambler were heard of the object taking the current in telegraphic circles that the direct taking alm was cover trial between New Yerf and Philadel-min, but had to be given up or account of the Phila-sel-shake seasoned health earling to attend yet by Solake seasoned the but the office to a transper of heal

delahin operator's breath smelling too strongly of los Seriously, we would be the last to detract in Settoday, we would be the list to astrong in the smallest degree from the notice and home due to the worldy inventor, equally worthy whether he outs intermedical or a soful form some grand original discover-of his own, or whether he only innertees, perfect, an of his corn, or whether he only inntrates, perfects at renders available the previous inventions of other But in the latter case it is the grosses? injustice to gi-penice without stint to the lattest course, while the pre-vious laborers in the same field are possed over interwithout recognition; and when this is done without recognition; and when this require, is in nrecont instance—whether intentionally or otheric matters not—it is but an net of simple justice, for who knows the facts, to use what means may lie in h power to set the matter right.

BIII Body's Recollections. 180.00

By Joe Humans.

IT was one of the believ, broozy Sunday afters If we can of the below, brows Similar intermed during our sit with the freders, while we ways structured of at full length in the shade of the one solitary observa-tive of which the whole country be robed, our thought conting for above the robbe could backbirds which we devouring the rips and bestons finite on the overlain, ing, branchest—couring for inter-observal space—one wante we were presentatively so tring for interthe futur and thinking of beaver and the amoute, and wonders if we, as an anged, would be a stricted in our comfor and autormants worthering if you would not be mitted once in a white to enjoy one Hayana it would only carry a spittoon under our would only carry a sufficient under our arm (wing); mountly of it nerchards, our Y university abouth we we steme if forth from this footstool, device ma-nualent a macke, as these and suffer consumer with which we might only carried indistration and malistrations. It was during moments of this kind, while we no thinking all about those newtors, that Bill Body for in mose our tranquill reductions and beyon "I wish rout could be!"

that ever steeped but this ranch," nointier a was nitsed noworfully when he left here; he's not-so yet. No one will ever satisfactorily supplant him emolimentary already.)

"He was the host customer old Fillet eyer had, reclaim. I Sinose hack wein bein yet, but he allins so he'd guther never give a near their cheat him out of a baurert delit. In I recken this dole is an houset one. If hed the guarest, many though I eyer say so kind of old and mention. He took his drops to the call a "Hom! Seems as though I have keard of Johnny

"Hom! Seems as though I mave to are or sommy, nemarked I.
"Bave ve I Well, now, he ma't no slowch, is be bind of quar med promise, though, jeed like his warm was called to me. Powerful brealistics to Now not knows by name is Body-Bo B

THE NEW ELECTRIC LIGHT.

On the evening of May 5th, some interesting ex-teriments with MM. Ladygin and Kosloff's electri light were conducted at the engineering works of dessrs. Warner, 10 Diana place, Euston road. To obvinte the difficulty of curbon being consumed when burnt in contact with oxygen, M. Ladygin placed sticles of carbon in a closed glass chamber filled with a gas not containing oxygen, but owing to the use of metallic connections the curbon was subject to fracare. The subject was then taken up by M. S. A. Kosloll, of St. Petersburg and 6 Great Winchester street Buildings, London, who has succeeded in overcom ng the difficulties by using a special metal of which he forms the holders of the carbon rods, and the are placed in a closed glass chamber. The lamps which were experimented with we

nine in number, six of them having two curbon rods, either of which could be placed in connection with the current of electricity. The roth were all 18 millimetres in length, and one in each lump was 2 millimetres in thickness, the others being 14 millimetres thick. The other three lamps contained each a carplon rod 70 millimetres in length, 2 millimetres thick, (and also connected with the main current. The first experiment consisted in burning a carbon rod in conlact with the atmosphere, the rod being consumed in a few minutes. The current was then turned on to the thicker rod in each of the six lamps, and a brilliant and steady light was produced, which improved as the current was increased in intensity. The eason for lighting the thicker rod first was that it might consume the oxygen in the lamp, by which is the rod was reduced a quarter of a millimetre, and was thus brought down to the gauge of the second rod. The current was then directed through the second rod with equally satisfactory results in all the six lamps. The three lamps with the longer carbon rods were then lighted and successfully exhibited, changes being frequently made from the six to the three lamps and back again. The apparatus used for producing the current was Gramme's magneto-electric machine. With the machine running at about 200 revolutions per minute a moderate light was obtained, which was greatly improved at 300 revolutions, the maximum of intensity being obtained at 450 revolutions. The strength of the light depends upon three things-the power of the machine and the number of its revolutions, on the length and thickness of the carbon rods, and on the quality of the carbon. The experiments showed that with the same strength of current and the same number of revolutions, double the amount of light was obtained with the three long carbon rods as compared with the six short ones. The experiments demonstrated satismetority the fact that the electric current could be sub-divided, and hence, if practice confirms experiment, which it is believed it will, there is a wide field open for the application of Kuslotl's system. The form of lamp used by the inventor is experimental, and its variation does not affect the principle. Ho leaves it to mechanical science to devise a lamp which shall meet the varied requirements of lighthouses, mines, submarine works, milways and other purposes, to which it was the general opinion of those present on Tuesday the principle is thoroughly applicable. - Telegraphic Journal.

THE TELEGRAPHIPPLE NUMBER

[From the Tribyne.] we printed some account of a scheme for laying percelain tubes under the streets, to contain the telegraph wires which now disfigure no mass of main thoughtform.

TOOTHACHE CURED BY ELECTRICITY .- Dr. Bouchard, of Paris, says that toothache may be almost instantly arrested by a constant buttery current from ten cells. The positive pole is placed against the jaw, on a level with the painful tooth, and the negative pole to the antero lateral region, on the same side of the neck.

Pole-mical The tallest and largest telegraph/note in this city, perpaps in the world, is raised in Fulton-et, near St. Paul's Church, for the

WILLIAMS & PLUM Printers Stationers Blank Book Manufacturers 77 Bood St. Vincinic A.

UNION ELECTRO-MOTOR COMPANY Desira to procure a

GALVANIO BATTERY Putfilling the following requirements:

MANY AND OR DELIBERT.

In the self-second resident self-second second se

FIVE HUNDRED DOLLARS

be publ, in accordance with the deviates of the indexe, if the rey is adopted by the company—which shall also have the slope of exclusive sources tip to paying the adultional size of FIFTEEN HUNDRED DOLLARS. This offer will remain open until Movember 1, 1871.

Judges.—Manesan, Layrin vs. Persion of the field and
Shek Vergapi Company; Roscott, R. Parcort, Residented in
the firstern Dates The graph Company, and Frank I., best,
Everticles.

E. B. GRANT, President.

H. H. DUNCKLEE, Secretary. The managers of the Western Union Tole-

The managers or the Western Unson Table-graph incorpoly are somewhat sharmed at the possibility of the passage of the bills through the Senate and Hosso proposing to make all telegraph lines post-roads and providing for the regulation of the rates by the Government, I This would be a blow against their memory. and a collection of their commonpely and a collection of their commons profile. But and a related too of their commons profile. But a right have these gentlemen to expect profile their their their collections of their c ly in some things, but in its serious disposition It is more things, but in the neighbor disposition of more proposed for the more proposed for the more proposed for the more than hardy secondary for the country it is described in the supposed for the country it is described for the country it is described for the country it is more in more in the country of the proposed for the country is more in the country of trade in news

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150,927.—AUTOMATOL TELEGRAPH ATPARATUR. Metrici Gally, Heterosty, N. 1. Piece any II. June.

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purpose specieta. Se oprimo interiority as and for the purpose specieta. A suppose specieta suppose specieta suppose suppose specieta suppose
The Washington Star remarks of the tele-graph monopoly: "It is freedom from mo-nopoly and healthy competition in the every, day needs of life that the people want, and if these can be got in no other way, then Govern-ment interference will be demanded, and finally secured. The desire of these expitalists to hold on to an enormously fat thing is perhaps natu. cal enough but under the circumstances it can not be gratified. The greatest good to the vail in this country. Private interests are very powerful, but they cannot be allowed to override and oppress the peo-ple," It is noticeable that so few newspapers have anything to say in favor of cheap telegraphy and free trade in news. These are matters of the nimest importance to the press of the country, and yet scarcely a newspaper in the whole country has a word to say in their behalf. There is no reason to agreese that the new Atlantic and Pacific Company, though it may temporarily cheapen rates' will escape the fate of all corporations will escape the fate of all corporations, which are organized to oppose other great corporations. We may expert to see it united with the Western Union, and the public made to pay the cut, the only persuasent relief can come from the Mational (foremental, and until Congress decided to make the tellegraph insulasers of free as effect to make the tellegraph insulasers of free as the competition for carrying the mails now is we shall have no such thing as chean telegrander or free trade in news, while telegraph stock will continue to be the foot-ball of stock gamblers.

NATIONAL CAPITAL

THE PROSPECT OF A POSTAL TELEGRAPH BILL-THE WESTERN UNION VIRTUALLY A DEMOCRATIC TENDER - SPEAKER BLAINE AND THE RULES-THE DISTRICT OF COLUM-BIA BONDS.

(SPACIAL DESPATOR TO THE DAILY GRAPHIC.) WARRINGTON, January 28.—The feeling here is that some cost of postal telegraph bill must be passed this revelop. If action is postponed this your it is well known that the Bumocratic House will not interfore with the privileges of the Western Valon Telegraph monopoly. Things are, in that respect, just as the Democrats want them The New York Associated Proce bring composed of six anti-Administration papers and one halfes gets all its Southern news from the Associated interests of cheap telegraphy and true to quarter. The news muchine suppresses fants discuaging to Democrats, and exapporates (as in the Logsions leadness) occurrences which might injure the Republican porty. Republicans here, in fact, realing that the arrangements give the gathering of news into the hunds exclusively of the anti-Administration party. They feel that comething must be done | to havek up this monopoly during the present secsion of Congress. The different measures are now | under discussion, and some some issue will be -

revehed. The Republicans reacting to measure of figure to this term of the state of the state of the residence of the residence of the republicant of the residence of the republicant of the state of the republicant of the state of the republicant of the state o The Republicans rentime to demand of Speaker jether, for the amountment of the regularizons of the bate, so us to put a stop to difficultering in the

It is understood here that of the Statuted at obligation assumed by the Treasury for the District of Columbia improvements, \$6,000,000 are held by working people, contractors, and pursons of moderate means, who have done all kinds of work for the Distriet, expecting to be fairly reimburoed. Only \$0,the, especting to be many retonaryon. Only 20, 160,030 are in the hands of bankers and brokers. There is bitter disappointment at the action of Conthree on Tureday incl, in that it did not protree on Twoday and, in that it still yed pro-tising the prevent of the very large and the first in prevent of the very large and an include parts. There is now loop that the first the following the property of the property of the and pay the copying, to which the light first parts of the and pay the copying, to which the light collection of the property of the property of the property of the children of the light prevents the subject to the children of the light prevents the property of the prediction of the light prevents, the prediction of the light prevents are also as the property of the engineering of the light prevents of the configuration of the light prevents on the londs, in a braight which we provide the convention of the light prevents of the light prevents on the londs, in a braight which we provide the corn contin-

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regular contributor to the Register, has the following

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Correspondence. We do not hold ourselves responsible for the opinions of our Correspondents. Our columns are over to free discussions. on all Telegraphic subjects, without distinction of persons notice will be taken of an organ our communications

Quadruple Transmission by the Morse Telegraph System.

The Nat Deriver National Text Transcriptors of the World's Boundary of Nation Account of March 2009. The proposed will be first the companion of the National Nationa

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Origin of Popular Terms,—When loder, Operator Couse to be a Plu 27 50 Cr.

PORTSMOUTH, C.

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TED TO THE INTERESTS EGRAPHIC FRATERNITY.

ATURDAY, JULY 18, 1874.

THE TELEGRAPHER:

ED EVERY SATURDAY of 36 VESEY ST.

ENTH VOLUME.

br. One Year. - - - - 82.00. INVARIABLY IN ADVANCE, See Pive Coate

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reto of posings on Tre: Transparer errors will please hand the annual or quarterly produce norm, taking their receipts. If any higher more are dis-lopers the facts to the level Postmanter. It possage on expose directed to amberdies in New Jak beam propaid by the pathlaker.

More Startling Inventions for Rapid Telegraphing."

Thre years ago a thick pamphlet was pubextes of the postal telegraph as an improveedderable value. The conclusions which Union pumphioteer arrived at may be

red up as follows: talex is a very old investion

(no practical value whatever,

stockholders the sume year, in which he graph insinces. Afternooners are mines years in some new foreign to the displace, that it what long foreign to the displace that it what long prominent place among operaturize teles. The financial editor of the Evening Post led off with starting statement of what was proposed to be done

ELEGRAPHER of the New York dullies gave currency to a rumor to the effect that an alliance had been formed between the Pronsylvania, Eric, and Baltimore and Ohio railroads, and the Automatic Telegraph Company, which would enable the latter concern to extend their lines to the principal Western cities, whereupon, by means

of their improved machinery for telegraphing which. in rapidity of transmission throws the duplex entirely the expressive idiom of the vulgar small boy—"higher then Gilderov's kite?"

Our Western Union friends, however, were by no ems caught napping. With a wise forethought, which cannot be too highly applanded, they had previandy chartered a Robernian, and, ofter taking himround to the grand radiating electrical dispensatory in the rear of 145 Broadway, had literally crammed him to the muzzle with scientific loce. On Friday-the very next day after the appearance of the above artiele-they pointed him directly at Wall street, and fired timmensacy quancopera in the columns of the New York Town with a mid-retdered university the expenditure of any more most terrific detonation, to the great temporary demonaliation of the enemy! As soon as the amoke cleared away a little a reporter of THE TELLORAPHER was dispatried to the scene, whereupon it was discoveredthis was a "discovery," mind, and not an "invention" -that the greater part of the noise was in reality nothmg more than Chinese thunder, and that little or no artual duringe had been done.

The truth is, things have changed within five years. orthers in New The Western Union Company's shares have been gife Western Union Telegraph Company in other part of this paper would rather seem to point to Fig. Western Under Chappage to plane of the happage which is the controls that the control to th of this document, as a paragraphs must one some some one of the composition of the compos which had even then here more than a co, but in comparison with the productions of the asold and continuous operation upon the impired joung-a-inter of the Town, most of them are positing company, and had been referred to but us the fredde gaining of the spiritering taslow dip

Telegraphic Russers and Fancies,

Ix the absence of sensation topics, the council and the Throw-Benezian semial being worn nearly threadno pronuent vision sensitives.

In of any practical value its use is free to burn, and the husbres at the Stock Exchange being Western Union Telegraph Company. instanting the Western Union Telegraph exceedingly duit, nome of the New York dailies have gons extensively into the manufacture and publicapreliminas appear to have afforded great this of reports and statements in regard to new relect new Atlantic cables are lank, shee modeler excellent to the fulfill at that time, for we find graphic combinations and so-called inventions, which includity repeated in President Ourox's are expected at an early day to revolutionize the tole-

ad has recently been extendirely advertised by the Automatic Telegraph Company, in comof his recordly lone extension, described by the Assistance Newgropt Country in a monthless product of a relative succeptable (March 1997). The same time post is the being minimal compliance of a second control of the same post is the best hours, that an indicate the product of the same post is the best hours, that are being to control of the same post is the best hours, that are being to control of the same post is the same post in the same po and thus represent a compacting lines." The with the leading militard companies, as follows:

another election as President of the Eric. We have been unable to learn whether there is any connection between this project and the new Atlantic cable which the Paraday is new laying."

The design of this statement, which is a rejectition. more in detail, of similar reports which have been promulcated at intervals of from three to six months during the jost year and a bulf, was evidently to "bear" Western Union stock, and that it had the intended in the shade, they would magnestionably be able to effect was evident in a decline of two or three per cent. knock the future dividends of the Western Union—in in the quotations. We have investigated the matter, and are assured by leading officials of the Automatic Telegraph Company that no such arrangement has been made or is likely to be made at present, and doubtless Mr. WAISON was as much surprised as anyholy to learn of his intended transfer from milmed to telegraph management

Our Western Union triends, to counteract this device of these who were short of the stock, on Friday of last week had printed in the columns of the Darly Front a statement in regard to a wonderful invention which immediately quadrupled the facilities of that company, money for line construction. We have elsewhere exposed the absurdity of this so-called invention and the assertions in regard to its value and importance. The Street evidently was not in the mood for "builing" Western Union, and its effect was not perceptible in

The New York Testione, not to be outdone in the good work, supplemented these reports with the tol-

The Western Union Company's states have been planted in the last of the Social Rectinguity in the last of the Social Rectinguity in the state of the two theoreties, premisers in the segment of the last of the Social Rectinguity in the state of the two two products and a plant of the last of th

On Tuesday last the Trabase devoted nearly a colmum to the automatic and quadruplex systems, the invention of both of which it attributes to a person who has as much claim to one as the other, and none to either; the gist of which is that white the automatic is a big thing it is of small account, and cannot compete with the harvellous quaduplex. This opinion, however, if does not set forth as that of the writer, but of our friend, Mr. Gilo, B. Phiscorr, electrician of the We think this vein is nearly worked out now, and

opportunity will be afforded for the display of unterprise on the part of our new spaper manufacturers. We are informed that there is this much truth in the reports in reference to the Automatic Company: The nanagers of that company are embeavoring to com-

777 Broad St. Alexante A.Z.

and psy the component to accord to mon matters and psy the component to the component of th

Form 3.

THE DOMESTIC TELEGRAPH COMPANY.

Jeneral & Rees, 52 Breadway. NEW YORK.

New York.

TO THE DOMESTIC TELEGRAPH CO.

You will please place of your Signal Instruments

in premises No. Street, Room in telegraphic communication with your Company's District Office, entitling

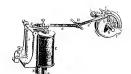
Messenger, Police Patrol and Fire Alarm service of your Company upon the terms set forth in your circular; and as a rental for each of said Signal Instruments. to pay to the Domestic Telegraph Company, One Dollar per month, and their usual charge for service when signated for.

It is hereby mutually understood and agreed that this Company will in no case be liable beyond the sum of One Hundred Dollars for any loss or damage that occurs during, or in course of, the employment of any of its Messengers.

NO CHARGE

on and firmed this paper to the above effices.

CONNECTING OR REMOVING Signal Instruments. To so a string these instruments, please gate



purpleying of this principle until the last tow days, Effect E R

Tax following is the report made by President Orter to the Directors of the Western Union Telegraph Com-pany, on Westerslay last. The accompanying result-itions teclaring a quarterly divided of two per cent-on the stars of the company, which were unadarously on the shares of the company, which were unadecoust adopted, appeared in the last number of THE TELL

EXECUTIVE OFFICES. WESTERN UNION TRANSMITTER COMPANY, NEW YORK, Dec. 9, 1874.

Warraw Univer Patentine Courter, Virginia Courte

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The spirits of the sp

rollis of 1873.

view of the facts above stated the Executive n view of the majs above states the Executive numities at their regular meeting on the 2d inst. sed a resolution recommending that the Heard at

The Quadruplex Patent.—Contest for Origin Title.

Title.

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New Patents. For the week ended November 2, 1874, and Learning that date.

8,565. ELECTRO-THERMOSPATIO FIRE ALARMS. Edward J. Freed, Philadolphia, Pa., seekpare of one half to J. Hachmien some place. Filed September 4, 1874. Generally closed and thus through signal appreciats; a ther-resets torontally localities through signal appreciats; a ther-resets torontally localities as signal to the magnet of the signal apparatus, rendering the same to the signal apparatus, tracked by the notion of boot for the through the finite of the signal apparatus. The signal is the signal through the issuer, if we have a signal increducting the signal in the signal in the signal is a signal in the signal in the signal increducting the signal in the sig

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the telegraph.
On the let day of Pelmary, 1873, the maximum tariff On the 1st day of Polarary, 1873, the maximum tamin between the most remote points on the company's lines was fixed at \$2.50. This was equivalent to a reduced to the polar tame to the company's lines are the company's Adamtic and Positic States, the axise having here pre-viously from \$5 to \$7.60. The first effect of this reduc-tion was a costilerable lossed revenue. But for several months past the revenue from messages between the Adamtic and Pacific States has been larger less and during Admits and Patints Saffes has been arrest uses aurust any corresponsible porful abeliary that makes even reduced, and we have been able to transmit the learness of which is more of the patient of the patient of the patient of before, without the addition of a single with to the transcontinual line. This result is brency into to the successful operation of the duplex appearance of which I have spitched in previous reports.

I have spiden in previous reports, in my inst namel report to the stock-holders, I stated the fact that we were then operating between New Sections of the state of the stock-holders, I stated severables, on appearance called the quadrupies, by means of which two surveages were real in the same, directles, and two nodes means are in the same of directles, and two nodes means in the source of directles, and two nodes means the source of the directles, and two nodes makes the source of time the lavounters, Mesons, Thomas A. Edition and Googna, B. Proseculi, have no for preferred the apparetes that it is now working successfully on a direct circuit between New York and Chicago. The great success of this invention within so hard a time after intereduction leads me to helper that we shall be able to put it upon results between all stations where According to Section 2. According to the interference in the latellity of the control of the con

West, and that effort were then being made to require he berrary than observed the release of the serve than the berrary than observed the server communication. I move have the observed that the property than by the add of the International covern for report than by the server than the company at Key Work, has thereadthy erechanded the calcie cut of the Work has the sense of the company at Key Work, has these such that the company at Key Work, has the sense that the company at Key Work and the sense that the company at Key Work and the sense that the sense the sense that the sense the

batween those pomos, three years age, Respectfully submitted, William Outon, President.

For the week ended January 19, 1825, and bearing that date. 188,787.—Transmann Apparatus. Thomas A, Edison, Newark, N. J. Filed eng. 13 1874.

"Rectronarynals" in which the nursheded action of an armatine is challed by shorter-tanked decomposition. A physical spins, included in a certain standard in one direction by the frickin of a moving start of charlest particle paper, when the current passes the frickent is best on particle paper, possible effected thereby, and a tractile spring moves the style of opposite direction.

5. A moving amface in contact with a fielding vibrator, rough which pulsations of sierticity are passed when such riaces in contact are of such a character that the friction of be wated by the electrical condition, substantially as sat. irth.

2. A tilentor, in combination with means for adjusting the pressure of the vibrator on the merring surface, and of the joining force stat move alto therefore in the opposite direction to that derived from the moving surface, asketeninity as set to use offerentials of a yearing burners, exceeding a sec-ferth.

3. The conditionals of a yearing shrater, operated substan-tially as set forth, with a secondary circuit sciented by such vi-brator, substantially as specified.

4. A following in interacted with a vibrator that is controlled by observe-chemical decomposition.

JOHNSON AND DELANY of the Automatic know a thing or two about "statle discharges," Assume is so hard pushed for "copy" that he is compelled to republish "Little's" articles.

Substitute for Office Boys.

he Secreey of "Gavernment Telegrams? So. ment by the use of the Antematic. To OD A DUPP Journal of the Telegraph.

ELECTRIC TELEPHONE

Mr. Elisha Gray, of Chicago, a gentleman well known as an inventor, and manufacturer of telegraph apparatus, has perfected an instrument by which rounds produced at one call of a wire can be conveyed to the other end by electricity, over circuits of great length. It has already been tested upon the wires of the Western Union Telegraph mpany over a circuit of 2,400 miles, with the most satisfactory results. Tunes, played upon the key-board of the transmitting portion of the apparatus, were distinctly audible and unmistakabiy reproduced, note for note, at the distant end of this long circuit.

The apparatus by means of which this extraordinary feat in telegraphy is accomplished has been named by Mr. Gray the telephone, or, an instrument designed for the purpose of transmitting sound to a distance. It consists of three general parts ; first, the transmitting instrument : second, the conducting wire, running to a distant point; and third, the apparatus for receiving the sound at that distant point. The transmitting apparatus consists of a key-board having a number of electro-magnets corresponding with the number of keys on the board. to which are attached vibrating tongues or reeds, tween any two terminal points. Two days ago turned to a musical scale. Any one of these tongues can be separately set in motion by depress ng the key corresponding to it. Thus a tune may way as those of an ordinary piano or melodeon. The music, produced entirely by electricity, of these notes is so distinctly audible in the next room, that, in spite of much talking, there is no difficulty in nining what tune the manipulator is playing. To this transmitting instrument the conducting wire is stracked, the other end being attached to the receiving apparatus, which may be anything that is without the need of any new class of operators (as stretched between the strings at a noint where the on receiving the sound transmitted through the conducting wire from the plane, give out a tone very similar in quality to that of an ordinary violin. If Company, through whose encouragement the inventhen the metallic strip is electrically connected tion has been perfected. Of course it is needless to with a wire, say, 500 or 1,000 miles long, which has said that the new system will be speedily put in pracits distant end properly connected with the transmitting instrument, any one at the receiving end can distinctly hear, without the aid of an electromanipulates the receiving apparatus. The length of the wire connecting the transmitting with the rereaches its destination. In fact, there seems to be no limit to the distance to which sound, of any desired pitch, may be thus conveyed with from two -N. Y. Times. to five cells of battery, all the conditions being proper. The quality of timbre of the tones depends upon the character of the receiving apparatus which may be a violin prepared as described above, a tin hoop, with foil paper heads atteiched over it, lished, for the information of the army, the act passed after the fashion of a baby's rattle, a nickel five cent at the last session of Congress to protect lines of tel. leak discovered. piece, an old oyster can, and a thousand other egraph constructed or used by the United States sources. A smoot, millifectuity bould to road Morse form malicional player and abstraction, which make the designable character, mode by interruping, with a minimum or to higher ordering with the common to higher ordering with the common to higher ordering with the common to the properties of the second through the common distance of the wire without any morte placed factors to be mainted by a fine of rate between the common diseasure part of the wire without any morte placed factors to be mainted by a fine of rate between the common diseasure part of the properties of the properti

QUADRUPLE SYSTEM OF TELEGRAPH.

Wednesday afternoon last, at the Broadway offic of the Western Union Telegraph Company, a test was made of an invention which promises to be of almost more importance to the present ago than were Morse's first achievements to the people of his own in a state of lively excitement about some time. The test resulted successfully, and it proved electrical disturbances which have occurred time. The test resulted successially, and it proved that four messages can be simultaneously sent on a regularly every night. For three nights all its in single wire, and with no more liability to mistake than as if an equal number of wires were used. To make the matter clear it will be necessary to look a erected a large smokestack, which rises to a conlittle backward. Morse took the first step in telegraphy-and the first is always the greatest-by the avention of a system by which messages could be ent between any two terminal points, and dropped at any way station on the circuit. The objection to in off the read, and also while being fired up it by his system was that the transmission of a single meseage occupied a wire entirely. And though electricions were convinced that a different result could standing in a room about forty feet distant. Felectr he attained, no one showed how it could be successfully done until three years ago, when Mr. J. B. Stearns invented the duplex apparatus. That was the second great step, and it instantly doubled the pingham, a well-known machinist, approaches envacity of every wire which had been exceted. Bethe Steams process two messages can be sent simultancously on a single wire in opposite directions be was taken a third great step, and one not inferior to either of the others. It is a new process of mulsiple transmission by which two messages can be he played by manipulating the keys in the same sent simultaneously in the same direction over the which he at once recognized as a discharge of the same wire, and either message can be dropped at any way station on the circuit. Nor is this all. The dunlex system can be applied to the new invention, and by the combination four messages can be sent imultaneously over the same wire. And not the approached it. After an hour or two the plant least recommendation of the discovery is, that it coon ceased. The next day nothing was sceni calls for no changes; the old Morse key is used, sonorous so long as it is in some degree a conductor in the automatic telegraph), and with no duplication of electricity. A violin with a thin strip of metal except as to parts of machinery. The invention is began snapping and cracking, scaling out t the result of the joint labors of Messrs. George B. bridge of the instrument is ordinarily placed, will, Prescott and Thomas A. Edison. And practically a great deal of credit is also due to the enterprising policy of Mr. William Orton, the President of the tice by the Western Union Company, by whom the patent is controlled. It will make itself felt in more ways than one. For instance, the Western Union magnetism, the time or nir which is being played Telegraph Company have been forced to creet 50,000 500 or 1,000 miles away from him, if he properly miles of wire during the last three years, and of course at an immense expense. An indefinite fucalving apparatus may be one mile or 10,000 miles, holders. But this year scarcely 2,000 miles need be a siphon, so that the pressure of the gar, in varieties. provided that the insulation is sufficiently good to erected, and every wire is practically four. But prevent the escape of the electric current before it without further enlargement, and almost in the words of Mr. Orton, the discovery may be called the solution of all difficulties of telegraphic science.

THE PROTECTION OF GOVERNMENT TELEGRAPH LINES.

The Secretary of War, in a general order, has pub-

CURIOUS ELECTRICAL PHENOMENOLOGY

From the Physicis (Nesoda) Esterprise, June 17 3 During the past three nights the engine machinists at the round house of the Virgini Truckee Railroad Company, in this city, he have been engaged in trying to solve the myse but have only partially succeeded. The conthe base this smokestack is spread out in they of a funnel. It was built in order that the le tives may stand under it to cool off when they morning. Into the side of this smokestack, the four days ago, was run a stove-pipe from a F about this stove that the electrical disturbances ar place. The first that was observed of their about 11 o'clock, four nights since, when Plapri stove for the purpose of putting a stick of waklet it. As the stick neared the stove he received at the shock that it fell from his hand, and his arm 'y said co numbed. He at first thought he had taken a pri cromp in his arm. In trying again to not the into the stove he received a second shocklassif-ac time he observed a flash and heard a sharple tricity. They tried all manner of experime tioned that the store was fully and heavily of with electricity, it giving out sparks and it when a piece of iron, steel, wood, or the nakedul in but the next picht, about 11 o'clock, shorale ocomotive came in and stopped under the ful the smokestack, the stove was again charged and the best on all sides. So it has been overy since. They now know that the heated locor causes this electrical display, but in just whis is that which is still puzzling them.

Gas Processor Ataux -- When two neigh buildings are illuminated by gas derived fro same source it frequently impoens that the extiof the lights in one building causes the presand in the other to become greatly increased cometimes to result in accident. M. Launax poses, as an alarm to give warning of this ov. figuid is in communication with the gas by ma raises or lowers its level. If the pressure is a in contact with the metallic portion of the bes establishing a current which sounds an establishing M. Launey also suggests that a second secon emoke into the supply pipe. The fames of ir the for example, es uping in any room, would be ily distinguished from gas, and the locality; Ci

Pasionarny.-Pasigraphy is the name of

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trap oest to send atoney by a . O. Other) negistered herter, happess or Draft on New York. Goods sent by Express C. O. D., on receipt of 20 per cent, of the order, if t exceeds \$10.00. If less than this, \$2.00 must be sent as a guarantee of good faith. Any arther information will be cheerfully furnished by addressing

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Western Union Telegraph Company, 143 Broadway, New York.

NEW YORK, JULY 15, 1874.

ELECTRO MOTORS

power by the electric current is not abau-Enough is already known of its capacity to It is supposed by the inventor, and, of course,

ommittee atnes.

EXCURSION OF TELEGRAPHERS.

The Quadra-enterestly interested in the telegraph, accomclassday, July 1st, a select party of gentle-

for rapid testing an account of the arrangements on board for Frischen, Newhall, Hughes, Farmer, and other displany. Of one gaments on the record, assume a particular of the practically solve this great problem, we have posses forward stere a collation was served, after which the his just claims. sease to them as "to Just custom." It is pus custom. Whenever any other person shall invent us good a "display ry, where she arrived at about 8.00. In the pure of the state o

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By an invertibul, with the thermost described, not con-bination, with the thermost described of a con-ll, the agric of conductors D D D, and which P, sub-dry as and for the purpose of first product of the con-traction of the purpose of the contract of the con-traction of the contraction of the con-traction of the contract of the con-traction of the

DUDLEY TELEGRAPHY.

To prove the inaccuracy of the statement made in a recent number of the Telegrapher, that we claim general dissatisfaction with telegraphic amountainess every invention in Dunlex Telegraphy for Mr. Stearns on account of " so many apparent defects that can be since the Western Union Telegraph Company ac- readily discovered by examination and experiment." quired his valuable patents, we hereby disayow and His first complaint is directed to that long-suffering telegraphy contributed to that valuable journal, and and link and in the issue for Tabu 4th 1974

This great invention a description of which, accommunical by an elaborately executed diagram, at nothing less than the solution of the following on both theoretical and experimental grounds, difficult problem in dupley telegraphy : to wit : A permanent equation of the outgoing current upon the necessity of adjustment.

This problem is supposed to be solved by signalcarth, each lattery having the same number of ele- graph, quoted above. quarter bulletiment, which may be found in its proper ments. In one of the lattery wires leading to the of given qualities for the use of the United hattery wire is inserted a registance count to that of Bectro Motor Comnany. This means busi- the relay. The batteries are so arranged that they he experiment of producing an economic may be connected or disconnected by suitable de-

Juliuro extensive employment of it not only sanctioned by the scientific editor of the before-men. Plates as would be requisite in a standard condenser Servovirie, a revolving magnet of 4 inches Arrand 24 inches across the face, is pumping relay, for the reason that any tendency in the bat-"allons of water per hour to a retervoir 30 feet tery connected to the relay to set up a current, is condenser in question was determined by comparison a cost of 2 certs per hour. This is a mere balanced by the opposing current from the battery n of the future of a power, free from all connected with the resistance coil. Were the line corrected with the resistance coil. Were the line currents of danger, which the wants of man in open this suggestion would be correct, but as it must und ways ask science to provide. We necessarily be closed to effect transmission, it is ob-Should the battery wanted will be provided, whom that both batteries will act as independent iffer is made by gentlemen well known, who seeders to the main line, or as a main battery conthat they say, and who are directing experi-scated in two series for quantity, and the relay will the profits of all of interest to the wide-awake civilization close procisely as if no equation was attempted. Having thus disposed of the only original inven-

grander has favored the telegraphic public, we here beg leave to remark, that thus far Mr. Joseph B. Steares is the first and only man who has invented siderably from their proper figures. A SPECIAL by many ladics, visited the cable steamer and put in operation a successful system of duplex d. Morse (formerly the Suffolk) belonging to the | telegraphy. We are not unmindful of the great efimportant shool, Ocean Tolegraph Company, for the forts put forth in this direction by Gintl, Siemens, rates of a picking up of octan cables, and to test the stinguished electricians and inventors. But as Mr. interiors can picking up or occas cautes, and to cost to properly in a cost of the present of th to the W³ Atlantic, a few miles outside of Sandy thought it no more than his due to accord to bim

Corwing for Morse is a steamch fron vessel of 1,100 invention in duplex telegraphy, whether good, bad, ben, and is remarkably well fitted by hadd or indifferent, if brought to our notice, we shall be

tally as set forth, with a secondary sircuit actinated by suce va-braics, substantially as specified.

A histograph instrument with a vibrator that is controlled by declarociantical decomposition.

JOHNSON AND DELANY of the Automatic know a thing or two about "static discharges," Assumer is so hard posted for "copy" that he is compelled to republish " Little's " articles,

We publish in another column a letter from Mr De Bree, of Key West, in which he expresses his

disclaim for that distinguished inventor any right member, the armature, as to which there has been of prior invention in the latest discovery in duplex and is now, examination and experiment ad infisfrom . For he it from us to claim that perfection has been reached in any apparatus ; yet it is true that the form of armature now generally used and manufactured by the Western Union Company is found, was published in the issue above mentioned, aims | for general purposes, to be the hest yet discovered

Of course special kinds of work often truning specially constructed apparatus, and it is quite posthe receiving relay at the sending station, without sible that Mr. De Bree may have found inagnets or armatures set to accomplish work for which they were ill adapted : but his varue paragraph on armaing with two batteries, both having their positive tures hardly furnishes sufficient justification for the poles connected to line, and their negative poles to somewhat sweeping character of his opening para-As to the Greeky Bettery we should be glad to

have him point out the particular defects that destroy the economical properties of the battery The condensers to which he alledes were made for dunier use only, and as for such use the immediate discharge only is required, it is not executial to secure so high a degree of insulation between the of its charge in 15 seconds. The capacity of the with a standard 16 micro-formed, by Elliott Bros. London, made within the past year. If Mr. De Bree's observations are correct, some change has taken place in the condensers since their shipment. The test appears to have been made with a mirror galvanometer, although it is not stated what instrument was used, nor exactly what battery, but simply that it had shout one Volt tension." From the tests given condensers Nos. 7, 15, 20 and 22 appear tion upon duplex telegraphy with which the 75% to give deflections very nearly proportional to their marked canacities. Nos. 17 and 18 seem to have lost

Mr. De Brec's embarrassment as to the significa tion of the letters M. F. used in marking the condensers, arises from the change that has been made by the authorities on such matters in the use of the words farads and micro-farads. What was formerly designated as farad is now called a micro-farad. Latimer Clark (1808) gives the canacity of various cables as about 14 fanal per knot, while Culley (1874) gives the usual capacity of a cable as about 34 micro-furud per knot. Reference to Prof. Jenkini duplex as Mr. Stearns', or shall make any original manual shows the adoption of the latter signification of the terms.

nearly all canacity, while the remaining 6 years con-

ment for the braines in which she is now happy to give such investor his proper scenare of reported as lost off the coast of Nova Scotia, has a THE cable steamship Firmlay, which had been rived safely at Portsmouth, N. 11.

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or contemplated by said Act of Congress, and Act of Congress defluced and Hastieri the rights intended to be conferred upon the said Charles Page to the removal of extinting distributions and specific and special pages therein designate parate answer and defenimplainants, the defendant and helief, "That prior to the off on the 2d day of Febru-(Grafton Page, chaining to sovery of certain new and duction cell apparatus and plication for bitters patent as of Patents of the United

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CUSTOMES. - "Can you deliver this immediately ?" this meetin made out : The yea THE DOMESTIC TELEGRAPH C The Western Union Telegraph Company.-Its Business and Prospects. THE following is the report made by President Ort Journal of DUPLE No. 52 Broadway, New York. ournal of the Telegraph. To prove the inac a recent number of Sernal is issued on the 1st and 13th of each month every invention in D gation is over 8,000. It goes to every State, OFFICERS: since the Western and Province on the Continent. It has become a and is always reclosured as a friend. No better quired his valuable I. B. EDSON. GEN. THOS. T. ECKERT, disclaim for that di etteleer exists. " President. of prior invention i telegraphy contribu D. G. FARWELL, Treasurer and Secretary. THOS. A. EDISON. CHAS. BATCHALOR, Consulting Electrician. MEDIDANT,-"Yes, if you pay 10 cents for Telegraph boy," E. T. CILLILAND & CO. erry to our cust Manufacturers and Proprietors of adicting a rewar KENNOCH'S BURGLAR ALARMS, of given qual electro Motor Make the following Territorial Assignment: apower by the N Enough is a appoint luturo exten The hereby this ____ day of ___ probab ser and 24 is Country of State of Superior allons of wa vass for the sale of Monnoch's Burglar Alarms, in the following territory a cost of 2 fo of the fi thents of dan tenand wave Efdoubt the the is made Count they so coll of interi In consideration of the above appointmen THE EXCURS has this day ordered Alarms, at ______the price to Agonts, (as printed on this Circular,) and agree Aminently to make an additional order, at same rate, every ______ days thereafter, of _____ An by many for r Moree (fo Alarms, until said territory has been canvassed; and to canvass each and every lown and town sions fonal Oce ship within said territory, thoroughly, as early and speedily as possible, and in no instance assign inspect panya picking canvass outside of the above named territory, or to sell Alarms at less than list price without t two unlittles of written consent of the Proprietors, also agrees to pay cash for all Alarms he orders by Freight, at bird hed, and if ordered by Express C. O.D., to send 20, per cent., (or not less than Two Dollars) of the amount ssue 1 Atlant Westo ere a col of the order. The Proprietors agree to fill all orders as promptly as possible, to vive the ca-M. Courned to the exclusive control or the above named territory long as he continues to canves it-Acronghly, and operate in a business-like manner. A failure on the part of the said in deine as is herein forth, renders this appointment null and void, otherwise to be in full force. Signed in duplicate this _____day of ____

THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.

The Aerial Screw.

February 28, 1874.] THE TELEGRAPHER.

THE TELEGRAPHER A JOURNAL OF ELECTRICAL PROGRESS

J. N. ASHLEY, - - - - - - PUBLISHER. SATURDAY, FEBRUARY 28, 1874

The Page Patent Litigation,-Answer of the

Manhattan Quotation Company.

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the answer of the Manuation Quitation Company
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York.

The answer mimits the Act of Congress under which
the application of Prof. Page was made, and letterpatent issued to bins, but denies that said Act of Conthe application of Pref. Page west make and better greas conferred may prover, right or authority for lensing areas conferred may prover, right or authority for lensing and the present control of the present control of the present and the present control of the present control of the present of a practice and circuit between, relay the same interplacement of the same present control of the present interplacement of the same present or related to a make by Pref. Page, or than by related as of press as analytic preferred to the present control of the present complaint, but that on the control of the present complaint, but that on the control of the present complaint, but that on the control of the present complaint, but that on the control of the present complaint of the present control of the p

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Acting Commissioner of Patents.

Sin-I desire to amend my application for letters patent for the induction coll and circuit breakers, now pending before the Patent Office, as follows, to

they possible phore the principal colors are produced by the large state of the large st

revenue and devise con graphy—and claim by tred to them unde and

been accertained, and have already appeared in the daily papers of this city. As evidences of high toned journalism we submit the above to the readers of THE TELEGRAPHER.

[February 28, 1874.

THE TELEGRAPHER.

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and the second of a "of the second of the se cution to circuits between the principal consumer centres of the country had been definitely arranged. With great respect, I have the honor to be,

GROBER HARRISOTON, President of the Jut. Tel. Co.

Past hope—the possibility of a Government tele-graph system in the United States.

The Aerial Screw.

Under this name M. De Fonvielle has constructed an apparatus for testing the powers of various electric batteries. Using a winged screw, in the form of a ship's propeller, he is enabled, by counting the rotations, to ascertain accurately the power of any motor which he may apply to it. Our engraving



shows clearly the manner of its use. With a screw of 12 inches diameter and a motor of three magnets weighing about 2 lbs. each, a speed of rotation of 5 turns per second was obtained from a battery equivnlent to 6 Grove's elements. The speed can be minutely and precisely adjusted by varying the battery power, and experiments on the size and pitch of the blades of propellers can be readily made.

Feli 6 High Toned Journalism, 18 72

THE following appears in the last number of the nondescript shoot published in the Post-office box of the Western Union Telegraph Company, in this city : Gamewell's fire alarm system has proved a complete failure in more than one half the cities in which it is

The explanation of this and other similar unfounded and lying attacks upon GAMEWELL & Co.'s American Fire Alarm Telegraph system, which is in successful operation in most of the cities of any importance, and a large number of even the smaller cities and villages in this country is, that the publishers of the sheet referred to applied to Mears. Game-WELL & Co. for an advertisement, which was refused, probably for the reason that the paper having no standing or respectable character, it was not doomed advisable to be represented in its columns.

Another elegant extract is as follows: It appears from late developments that the Manhattan Quotation Company is not to be run out so casily by the Gold and Stock people. They have by a poculiar strategic movement in finance placed 39,000 in their treasury to keep the pot boiling. As both sides employ tolographers, we asy—good energin.

As the Gold and Stock Telegraph Company is mainly owned and entirely controlled by the Westers Union Telegraph Company, the force of the quotation, in a paper published as above by employee of the

latter company, will be apparent. With one more extract from the rieli placer of scandal and scurrility referred to we will leave the subject to our readers, and the consideration of the nartics in-

It is understood that some time age the American District Telegraph Company mortgaged their entire property to the Union Trust Company for \$100,000. This arises from the fact that it is, and has been, man-aged by go of reckless stock jobbers.

As one of the directors of the American District Telegraph Company, who is also largely intorested in its management and musererity, is a Vice-President of the Western Union Telegraph Company, the peculiar fitness of such a stor upon him will be recognized. The loan referred to was made some time ago, and was paid off long since, and this attempt to make scandal out of it, in the interest of a rival concern, is the more outrageous, as the facts might easily have been ascertained, and have already appeared in the daily papers of this city.

As evidences of high toned journalism we submit

the above to the readers of THE TELEGRAPHER.

The Secrecy of "Government Telegrams" Secured by the use of the Automatic Telegraph.

To run Escaso or Tex Textosature. Its reference to the intercepting or taking off measures from telegraph wires, as referred to in the resolution introduced on the 23d of March latt in the Homono's Representatives at Windpress, irrodiving the wait of Representatives at Windpress, irrodiving the wait of Representatives at Windpress, irrodiving the wait of Representatives at Windpress of the Homos of Representatives, very truly says that its none cases the wires connect with tearmination in holeis, and that all the wires connect with the secretary of the secretar TO THE ENGINE OF THE TELEGRAPHES.

resting of the animal stations between X-vallengine and animal station X-I of X-vallent and great X-I of X-vallent animal station X-I of X-vallent animal station and the X-I of X-vallent animal station and the X-I of X-vallent animal station and the X-vallent animal station animal station and the X-vallent animal station and the X-vallent animal station animal station animal station and the X-vallent animal station animal station animal station and the X-vallent animal station animal station animal station and the X-vallent animal station and the X-vallent animal station animal station and the X-vallent animal station animal station and the X-vallent animal station animal station animal station and the X-vallent animal station animal station and the X-vallent animal station animal station and the X-vallent animal station a operanti is that of silenci; and it matters not how many persons may be in each oldee during the trans-mission or reception of a message, by my sattemant, system no mid-rate is an interest to the property of the property of pussing a law fixing a puntilly method the property of pussing a law fixing a puntilly or pundatument on any person who may divide any message sent by telegraphs. (In J. Cartick, Pressule City, New Jersey, U.S. A.

June 9 187.1.

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A WESTERN UNION OUTSAGE

The outrage—for no other word will charac, terize the offence—permetrated in the conthe outrage—for no other work with coarse, terize the offence—perpetrated by the Western Union monopoly in the case of the San Fran-cisco Herniel is told in another column. The editor of the San Francisco Herniel asserts that before the paper was started an agreement was made with the Western Union managers in ments with the vester of the managers in New York by which the latter agreed to trans-mit five hundred words per day from either New York, Philadelphia, or Chicago to the Herald for \$050 per week in gold. On the failth of this agreement the San Francisco Herold was started in sivalry to the Associated Press pa-ners. The Western Union, at the request of the Associated Press, soon broke its agreement. Two thousand dollars instead of \$900 was devuloi as the price of telegraphic service No telegrams whatever were permitted to be sent to the paper from Philadelphia, and when the editor, at a large expense, had telegraphed the President's message from Washington to his paper it was held back until the Associated Press papers of San Francisco had recoived and published the document, thus readering the outlay of the Heroid in Marinatter entirely usoless. The final result of this outrageous breach of faith on the part of the monopoly was the death of the Herold and the consequent heavy loss of its proprietors. The paper which had been started in the faith of an agreement made by the Western Union was deliberately killed by the latter, and its pro-

deliberately killed by the latter, and its pro-priotors thus robbed of the meony which they had laveled. This is only a single unstance of the tyran-nical and unjust way in which the telegonal meonopoly exercises its enormous power. While, that power exists freedom of the press is in-possible in this country, and the value of news-paper property descends or its conpaper property depends on the caprice of Mr. Orton. That such a power should be permitted to exist in a country where even the Government is allowed no control of the press is an anomaly, and the facts need only to placed be, fore the people to insure the party triumph of free telegraphy.

It will interest our readers any the leading latery and a leading latery and that "Understanding for the leading latery and lat

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THERE PATHENY TAINS SIGNALIANO
STATES TO A STATE OF THE S

the electric telegraph, soveral years since designed and introduced on the Eastern Counties Line, between Norwich and Yar-Counties Line, between Norwich and Yar-mouth, a very complete system, especially suited for train signalling by telegraph; but from the number of wires required, the great cost, and other circumstances, it did not come into general use. Mr. Edwin Clavic subsequently modified Mr. Cook's method, and introduced on the North-Western Rail-and introduced on the North-Western Rail.

and introduced on the North-Western Ruit-my that mode of signalling known as "the block system," signifying the "ussintenance of an interval of space between two following trains travelling on the same line." With a view to remove some of the defects in the apparatus employed for currying out these arrangeseasts, and to dismissibly the general

full speed between two shattons.
These instruments and apparatus were
first put to work on the Brighton Hailway,
and the autonatic portion an excitous of the
South-Rastern Hailway. Captain Barboy,
the then is perintendent, and afterwards
general manager of this railway, wrote thus
respecting them:

"24th January, 1851.

"Wath.

"With regard to their poinciple. I am of opinion that by doing away with the trouble, and a common that by doing away with the trouble, and a common given that the signalman the signal by hand have the power of giving the signal by hand have the power of giving the signal by hand have the power of giving the power of the signal by hand have the power of giving the power of the po

R. H. Bartow." Our eccord patent, ranted 10th January, tooled at the compartment from whence is recorded at the compartment from whence the defails of the block apparatus, more par-

to send und receive the required signal or milto of signals.

Also for an appearant or camaling the goard of a trial reasonability the goard of a trial reasonability the goard of a trial reasonability of the signal control of a trial to a tunnel.

Also for an appuratus, constructed for the last vehicle of a train, to signal automatically the signal control of the signal reasonability in tages competing such trial and safely passed clear through a tunnel or junction.

&c. Our sixth patent, granted 6th October, 1880, introduced the system of re-magnetising the magnets employed for industry the requisite polarity of the indices, thereby innectiately counteracting the orders of lightning, &c., as hereafter described in

apparation supplyed, for corrying out these
controls, the instruction theory in the means of the corrying out the corrying of
Important desidentam of perfect immunity from lighting, autora bereals, line con-tacts, earth currents, &c.
The object of our patient of 1800 is the contact, and the contact of 1800 is effects of lightining, &c., by re-unequeli-ation, and the practical routed have provid-entimently successful. The object of our-patient of 1871 to prevent the entrance of lighting entirely.

The object of our provident of the pro-tent of 1872 is to prevent the entrance of lighting entirely.

This patent his includes an arrangement; for communicating electrically between a passenger and guard and guard and driver during the transit of a frain, and in such manner that, after a short and regulated interval of time, the communication is re-ostablished automatically, while critiques is

strictly for working the instruments by the company of the company

of lightning.
Recently several intempts have been made to neutralise this recersal of signuls from lightning by introducing into the instrument large persanean magnets, and therefrom inducing sufficient ungentism into the smaller magnets to actuate the indicator; but serves storms have shown the fallney of latt serves storms have shown the fallacy of trusting to any permanent magnet to aver-come the effects of lightning, inassuach as however large tip power, this force of the lightning is still greater; and when light-ning protectors of extractly flow wire are employed in addition those become fused, communication being thus stopped until proper means are taken to repair the damage.

Three line wires are also required, and Three line wires are also required, and five sets of hatteries, with persistent cur-rents, thereby entailing the continuous con-sumption of the hattery power to exhibit the required signal.

In Tyer's improved instruments, however, In Type's improved instruments, however, no peransumet magnets are uniphysel. The exterior indicator on the slid is moved by a piece of sivel sappended near to mor of the imagnet, being in direct communication with locality, it is not in the interpretability in the communication with the battery, it readores! power-fully magnetic during the transmission of each signal, thereby cashing the piece of suspended stred to become likewise magnetic. So soon as the current cases to flow the deel cro-magnet the current ceases to flow the electro-magnet parts with the greater portion of its mag-netism, while the steel retaining it is thus enabled to maintain the required deflection, precisely as if it were held over at the expense of a persistent lattery current.

There is also in combination with this arrangement, and equally efficient, an electro-magnet fitted with "horns" or "keepers" of peculiar construction, so arranged as to concentrate and rotain for an indefinite period the residual magnetism produced on the passage of every signal, thus rendering such magnetism, as it were, permanently available, in addition to main-taining the piece of permanently available, in addition to undi-naining the piece of steel to a required scaling the piece of steel to a required scaling the piece of steel to a required scaling the piece of the piece of the piece of the scaling the piece of the piece of the piece of section of the piece of the piece of the cannot be made to downtor from its proper arrangements the indicator on the dista-ct of the piece of the piece of the piece of the cannot be made to downtor from its proper could for over off the signalinan could state the piece of
in any way altering his signals, say from "train on lino" to "line clear," yet the indicator would immediately right itself

erecting and maintaining three line wires instead of one.

The coils of the electro-imagnets, being wound with, wires of considerable sectional area, allow ordinary charges of lightning to pass freely to "earth" without injury to the instrument; and the principal feature in

**ens, allow ordinary thingen of highbing of **ens, allow ordinary thingen of highbing ordinary in the instrument, and the principal feature in present the principal feature in present through highbing, insuediately the converted trough highbing, insuediately the sourcest through highbing, insuediately the converted trough highbing, insuediately the properties of the second principal features and the profits of the last signal sent restricted with color or or instruction that the profits of the last signal sent tracted with color over or instruction that the profits of the last signal sent tracted with color over or instruction that the profits of the last signal sent the profits of the last signal sent that the profits of the profits of the profits of the profits of the last p

upon the verying strength of the battery proven.

"Special Signification of the strength of th

one bell, requiring five complete sets of hatteries; whereas in Tyer's block telegraph two instruments only are required, and one

atterier; viceross in Tyer's block telegraph; and one placements only one required, and one Apart from the present safe-rectlying emission from the present safe-rectlying distribution with the present safe to the present safe

under any circumstances, and give the corrective flags at soft area. It is coverable the first, through the institute of the driver, leftere the protection frequencies in required to a most more proposed to the institute of the control of the con

distinguishing it from other block signalling instruments.

Since Mr. Cook's, Mr. Clark's, and Mr. Tyer's block telegraphs were first designed and worked a number of ingenious con-trivances have from time to time been intro-trivances have from time to time been introtrivances have from time to time been intro-duced to the notice of the railway world, generally based more or less on the previous original ideas; and although they claim some intrinsic merits, they have not not with that general success and adoption that have been accorded to Tyer's instruments. These intriments, notwith-instruments. These intriments, powerly instruments. These intruments, notwith-standing the streamen opposition of various parties, have not only maintained. Iter position, but are yearly gaining in-faction they have given to general managers who have adopted and are a present using this system in preference to, and in some cases to the displacement of, other systems previously at work, either upon the whole or on special sections of their lines.

Western Union and Automatic Telegraphy. TO THE EDITOR OF THE TELEGRAPHER.

To the Economic of Tot Takasharam.

I will by your beam of this shade that some Bleeter that of the Bush of the Worker's Usedan Company. The control of the Worker's Usedan Company. The Company of the Worker's Usedan Company of the Worker's Usedan Company. The Company of the C

JAY GOULD AND THE NEWSPAPERS.

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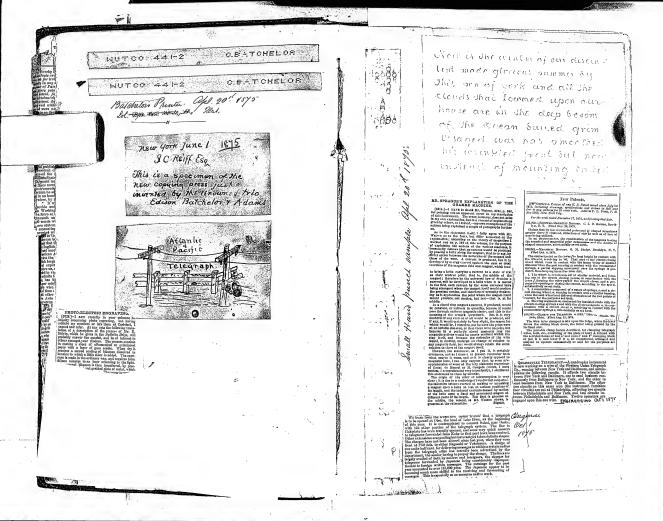
Poon Jim Ashley! Two hundred and eighty ounds of a blackguard to edit four peanyweights of newspaper, and "aily" assisted at that. ALL past and all future inventions, relating di-

ALL past and all fature inventions, relating di-rectly or indirectly to feelermby, are claimed broadly, distinctly and comphatically by Mr. Geo. Little, C. E., and proprietor of the American automatic system, which never worked; and we arive any member of the frateralty who is about to invent or perfect any such invention, to give it up.

Critcago reports its fire-alarm telegraph nareliable.

Office, no reports its dre-salarm telegraph ameritable. Are last the fracturily have been treated to an exhaustive article, by the shle ansistant of the Zelgrapher, upon the besuites of the Keroonia farmitor, an effort which first leves properly rewarded, on the part of
Owne to reduced circumstances, we hear that Jim Ashley is about to give up his Vesey street store, and remove—where, we are not informed.

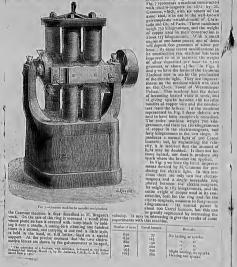
CITIZEN of California are memorializing the Gov-ernment to authorize the extension of telegraph lines from the Northern Pacific telegraph lines to the light-house and life-suring stations on the coast of California, and make an appropriation therefor.



MAGNATO-ELECTRIC MACROLS

MAGNATO-ELECTRIC MACROLS

TO DI this property to the control of the property of of the pro



TVALUE OF DELLA	Carcel barners.	Remarks.		
650 830 880 900 935 1025	77 125 150 200 250 200	No heating or sparks.		

By uniting two or more machines to-gether, electrical currents of high tension may be obtained. But a more useful arrangement is to divide into two each gebber, electrical Gurrents of high tension arrangement is, to divide into two attentions arrangement is, to divide into two attentions arrangement is, to divide into two attentions are into a consistent of the control of the contr

Fuly 1, 1875]

course work equally well such currents of the same intensity from a magneto-elec-late would be impossible, within the limits and the same intensity of the same and the proposed improvements in magneto-elec-tric unclines, which will be found in the proposed improvements in magneto-elec-tric unclines, which will be found in the same and all the same and the same and a terrent are obtained askely by the rost-wise. The same and all the same and a vise. This helis revolves in an annular vise, Table helis revolves, in a helis of intensity in space between it and the faces of the space between it and the faces of the space between it and the faces of the space could be annular vise and the space of offices of political revolves an annular vise and the space of the space of the space of the space and the space of t



Fig. a .- Graming machine for electric light flatest form).

Flow is the windsh of elisamilarly mades globally summed by this son of good and all the clouds that lower that lower than our house are in the cleapide and the complete and th made for sporter tricks nor made to court an am crows looking glass, & that am contailed affirmant fair proportions, cheated of feature by designly nature deformed unfinished, sent before my time in This breathing world leaves half made up. How by sound stant my golden dream is out, Mand muller on a summers day raked the meadow sweet with hay Beneath her lorn hat glowed the wealth of simple beauty and rusting health Mary had a lettle lamb cty fleece was white as snow and Everywhere that many went The land was sure to go, why what avery Best fool was that of crete who laught ween the officer of a fool and get for all this wing. The fool was chownded The boast of Heraldy of pomp and power

all that beauty all that wealth on grow atike awaid the encutable hour, the path of glory leads but to the grave. Full many aprose was born to die and blush unseen and waste its fragrance upon me

KESPY Yours napoleon III

The Railroad Sounder. THE TELEGRAPHER

ELECTRICAL PROGRESS. J. N. ASHLEY, - - · · · · · PUBLISHER. SATURDAY, JULY 25, 1871.

Original Articles.

Little's "Condenser Rheostat,"

At used by the Automatic Telegraph Company,

July 25, 1874.1

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Corresnondence.

The control of the co

Duplex Telegraphy.-A Combination of the Bridge and Differential Systems,

Is the diagram of my duplex apparatus, published mation: in The Thiodoxympus of July 4th, the resistance of The Children updated by amounts on at A should have been been the state of the Children updated by a should be should AT 18 well up one attractions are properties on a roy.

It is well known in telegraph, selected as that the effect of an iron core introduced into the control of a retarring cell of believe these result or addition to the accumulative resolution of the cold triefly in the accumulative resolution of the cell triefly in the accumulative resolution of the cell triefly in the accumulative are estimated. soles are connected at B, and — poles at A. I send out the following, which I consider an improvement

to the districting, which I consider an important to the distriction, which I consider an important to the strategierant does no marketed. I consider a final proper strategierant to the strategierant does not market to the strategierant does not be strategierant to the strategierant does not be strategierant. It is also that the strateg one attributative freedynamic 1 be and reedly the next allowed to except by rays a few much the number that allowed to except by rays and the current allowed to except by way of what I roum the overflow dom, therefore the number retarded, condensed or accountiated, therefore the number of the number of the number of the property of the number of the number of the number of the ing circuit, the ceils will also the reddense much number of the solid place path to earth optical by my event redden-toning the path to earth optical by my event reddenthree routes to traverse at E. viz: from ground G to junction b, around hub R of a differential duplox relay, it one route of 500 olms re-istance; second, from G through rheastat Rn of 250 olms, from junction



accommission, or condensor itself, to which, in an out-matical chomical telegraph, I also hold a broad claim by virtue of patents applied for and obtained surfrom the character of the control of the character of the

Indications A point of the New York Associated Press, December 1, 1969, in the cultivaries of the New York Associated Press, December 1, 1969, in the cultivaries of the New York Associated Press, Contracted from personal observations the receipt of our receipt from personal observations the receipt of the lattery resistance, which can be provided for an expension of the contraction of the press of the contract of the cont

The First Crucial Test of the American Automatic

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True following statement, in regard to the leggin in the neighboring Republic of Mexico, is on edicial report presented to Congress by the low ment of Public Works:

"If the lines thus for in operating some bill "Of the lines thus far in operation some the Federation, some to the States, and oth rate companies.

"The following telegraphic lines belong to

"The one which starts from

from which these data are taken.)
"The line which starts from the port
and passes through Concernia, Pinners,
tee, Burange, Nembre do Dins, and ende
tee, is 49% kilometers in longth.
"The line from Tehunean to Oaxnea,
kilometers in length and passes through

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See the support of the control of th

The Railroad Sounder.

adelphian and New Yorker. One touch of nature will make the whole world kin and crary, until the out raged race rios in its might to rend Gilmore limb from limb, and defile the grave of the inventor of the tele

An Important Legal Decision.

A DECISION, INVOLVING VETY important principles, was rendered in the United States Orient Court, at Chicago, on Thousady Jast, by Judge Dramonod, in the case of the Atlantia and Pacific Telegraph Company r, the Chicago, Rock Island and Pacific World Com-pany. The telegraph Company, no opting the Act of Congress of July 24, 1976, edutied 4 no 4 to aid in creeting beingraph lines and server to the Government the use of the same for pescal, multary and other pur-poses," commerced the construction of a min-plong the route of the Book Island Ruitoval, between Chicato route of the news passion Kantood, selvery this grand Omalia. The railrood company or ordered the trac-graph company to desire after a less poiss were set. Thereupon the telegraph company population the Ligh-ted States Circuit Court for an injustral set extrinsing

The First Crucial Test of the American Automatic

TO THE ENGINE OF THE TELEVISIONS. Dot tour, repetits and hardwork here here many. It is because, as a suppression of the property of the in the school of the contribution of the co

Correspondence.

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then the of this scanne for protect, minery and sale parts of the control of the first body data of the support of the control of the first body and the control of the first body and the control of the first body and the control of Pogentiesen, who, like yours-tree, are familiar with To gentiesen, who, like yours-tree, are familiar with To gentieser of automatic telegraphy in this country. So miles with a found in diffusing whatever the relief by individed winting to calless the analysis in trade of incount periodic with putable themselves in trade of incount periodic with putable themselves.

WIELEGRAPHER DEVOTED TO THE INTERESTS OF THE

LEGRAPHIC FRATERNITY. SATURDAY JULY 25, 1874.

THE TELEGRAPHER:

MARK PURRY PARTIES IN A 14 TAPER PR

TENTH VOLUME.

INVARIABLY IN ADVANCE. Auto Plan Cont.

HEN COPIES FORWARDED FREE OF APPLICATION resolvations must be addressed to

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The postage on copies directed to subscribers in New by less been prepaid by the publisher.

Western Union Official Organ and Dunley Telegraphic Inventions.

sue of the 15th instant the Journal of the Teleis moved by the remarks of our correspondent ano, which appeared in our paper of the 4th inst. empturetort upon THE TELEGRAPHER. ONTARIO, communication referred to, briefly exposed the rdity of the attempts made through the Journal uphic exentions for Mr. J. B. STRARNS (whose

ests have been purchased by the Western eng that our correspondent was in-

of THE TELEGRAPHER. We regard it as possible that some original ideas may be presented by others worthy than the condenser) to be found in the differential of consideration and space in our columns.

which does not inure, or is not intended to inure practical business, which was not known or used by directly to the interests of the Western Union Couscance these interests, inventions and scientific discover- specify the same? ies and principles are either ignored or contemped in its columns, as may seem most practicable or advis- thouly solve this great problem, the Journal meanable. We have no telegraphic axes to grind, and are that he was the first to cambor the duplex for regular not, therefore, under the accessity of dispuriging or telegraphic service, we will not dispute the acception. ridicaling at one time what subsequently are ex- although Dr. Schuller in his work (edition of 1867) tolled as most wonderful inventions, merely because gives an elaborate description, with cogravings, of a in the magnitine it has become our interest to do so, dander (correspondent, which he states was then re-This is the difference between an independent tele- gulariv working between Amsterdam and Rotterdam, grophic journal and an orașa.

srek to be first of all correct; and that we have been and that the exceptial elements of such a system are coroful in this respect is shown in that we have never percend by the patents new owned by the Western been obliged to retract or change our position on any Union Company, we think the assumption is open to important points. We do not jump at conclusions, or question, sustain at one time what we are subsequently obliced to oppose or condense. THE TELEGRAPHER being the neknowledged authority in electrical and tolographic science and grt in this country, we connot effort to prostitute its columns because our interests may appear the last number of The Tellougeners, it was stated to lie in a cortain direction. We do not ignore facts that Trios, A. Enssoy's claims to contain inventions in morely because they fall to coincide with theories, and connection with automatic telegraphy were audiqueted. nonneed-not on account of any new light upon the

subject, but because in the meantime this proprietor-

ship of certain patents has changed hands.

The readers of THE TELEGRAPHER are well aware that it has always awarded to Mr. STRARES the follow eredit for all that he has done towards the advance. ment of sigher telegraphy. As probabilistic message is the Billion of the Tillion of the Billion of the Tillion of the Billion of the Tillion of the Billion ment of duplex telegraphy. As president of a telesim-everything of value in connection with duplex and what is more important, he possessed the knowl characteristically, no pretence even duplex would to-day unquestionably occupy the same pseumon, in plants on un programment of the period of the GFR, STEPS, so comming no our a server versu, in space or opposition and runcing, income many part and particles, and expressly disclaimed established the fact that the duplex systely was just as [30]

The difficult is the condition of the co In My the multor, whose real many measurements of study industrial which Mr. Syzanzzy pole wires to earth, in connection with an overlook and to the article, that it's enhanted and to the article, that it's enhanted and to the article, that it is submitted of applying a compensating condenser. The credit of cylin

Region for construction consists. In minutes are in a minute size of the start is recorded to be placed with the start is recorded by the start is recorded to be placed by the start is recorded by

and knowledge centre in the editorial chair or chairs make a point on this matter, will be please inform usduplex, as now or heretofore used on the Western The Journal is conducted strictly as an organ, and Union lines, and which is in any degree essential to

it is intended that nothing shall appear in its columns the successful daily operation of the instrument in many, or of its leading officials. In the design to ad- STEARSS in 1868, and if so, will be be so kind as to

If by saying that Mr. STEARS was the first to procin Holland. But if, on the contrary, he means it to In whatever receives our editorial endorsement, be understood that Mr. Synams was the first and only either in practical telegraphy or electrical science, we have not a successful system of daulet telegraphy.

. . Automatic Telegraphic Inventions.

Let up be fall be able to the War Pollows of Post law the 14th insticts which a brief reference was mole in martly necessive over an in consequence make the pure "fellection by praising the extelling at."

This statement provided the following communications time what we have before condemned and detailed which appropried in the Tribone of Saterday last, and which indicate that the Tribone's informant had gro-sly deceived that paper in regard to the claims of Entsux to the inventions referred to:

> A CLAIM OF PRIOR INVENTION. -- MAGNETIC INDUSTRYS. To the Editok of the Tribune.

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Railroad Sounder.

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--legraphic Inventions and Inventors and The Telegrapher.

feer Fork, July 16, 1-71.

uz usual molemmer dulness in telegraphic mate. has been -uddenly depolls i, and our columns are likel of to decense the matters of interest to the '6' in Telegraphic Circles,—Resignation in telegraphic Circles,—Resignation of the control PHEN IS NOT AN "Organ," its columns are freely open len. Eckert, Superintendent of the man estan an organ, its commutare freely upon tens, teraerit, Superintendent of the too who may have no thing to present of interest | Division of the Western Union graphically. The attempt which has been made graph Co. Facts, Rumors and perspiratory. The account of a person not entitled specifies, but a person not entitled specifies, but a person not entitled specifies, but a person of an elegantic specifies are specified entitled entition was oversioned in telegraphic beto evanu telegraphic inventions, has stirred [finistion was oversioned in telegraphic others at a tested of vanishest better rights in the ingue the droker and speculators at limits, and are sent hely in prove very advantage, to the index dast referred to, on those when the provention of the prove king lim in the efforts to appropriate the discovers principalist of the Eastern Division of that and inventions which justify belong to utlers lims. This resignation thus the public and satisfy concered science, from which all the statements of the properties of the public statement of the public s advantage was anticipated, have been budly a reported that Mr. Fekert's retirement

larged and demonstrated already, and one integrals between the production of the control of the After is not by any means yet ended, and our renders, fished believes is prominently spacen of form the first in the position of tien by expect that for some time to come our columns he fastern Division. As manager of the



The Telegranh.

we entire that for some time to see an atters, egraph Company, previous to its consoli-the entiremed by the ventilation of these matters, egraph Company, previous to its consoli-the Western Union, tien, Lefferta was

and Executive Minager of the Gold and Stock Tele-graph Company is a very important one, and whether ne would concent to the transfer, if proposed, we are of intermed. not intermed.
There are unpleasant whisperings in regard to the hold which the Western I nion Company has upon the quadruplex, which it has pulled so industriously and spent on much to develop. The presumptive inventor of that arrangement is a slippery entitioner, and would be the usual thing for him, after the instrumen would be the usual thing for min, are rule instrument and been developed at the expense of the Western Union Company, and had been so unqualifiedly en-larted by its officials, to trick them out of it, if pos-

ble.
It is also runsired that negotiations are nearly com-It is also runsored that negotiations are nearly com-pleted with the Automatic Telegraph Company to; all of the advantage to be derived from its system to the appeal into the Western Union. We shall prob-othy be in a position to give our two-less more evoluti-mal definite motoranthon in regard to these multiers for All outs of runoperare affect in regard to matters

commetes wan the telegraphic contest which is about Followers wan the telegraphic context which I shown to be imaginated, but it is hardly overth while be used to report them at this time.

In report them at this time and the time of the telegraphic conditions are presented by the telegraphic conditions and the comparison consideration and the comparison consideration and the comparison consideration and the comparison conditions and the conditions are sufficiently as the condition of the condit The First Crucial Test of the American Automatic Telegraph System. TO THE EDITOR OF THE TELEGRAPHER,

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GOORGE LITTLE, C. E. Passale City, New Jersey, U. S. A. Inamed Let 1874

DEVOTED TO THE INTERESTS OF 227

LEGRAPHIC FRATERNITY. SATURDAY, JULY 25, 1874.

THE TELEGRAPHER: with Purny simplify of 16 Prepr St.

TENTH VOLUME.

TERMS OF SUBSCRIPTION

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J. N. ASHLEY, Publisher, AS THESEY ST. . New York.

Western Union Official Organ and Duplex Telegraphic Inventions.

Alasas of the 15th instant the Journal of the Tele-.no, which appeared in our paper e" .no 4th inst., coupt a retort upon Tile Telandrapher. Ontario,

FOR ELEGRAPHER and knowledge centre in the editorial chair or chairs make a point/ of THE TELEGRAPHER. We report it as nossible that If there is an of consideration and some in our columns.

f consideration and space in our columns.

dupler, as hereby amounce to the telegraphic and electrical interests of all Union lines sections that they have established a The Journal is conducted senercy as an organization of the success GENERAL TELEGRAPH AND ELECTRICAL which does not inure, or is not intended to inure practical but which does not inure, or is not intimued to reconsiderable to the interests of the Western Union Comnone or of its leading officials. In the design to ad- Sywansa in vance these interests, inventions and scientific discover- specify the es and principles are either ignored or contemned in If by sayi its columns, as may seem most practicable or advis- tically sulvits columns, as may seem must practices or on one that he was here they will keep in stock all styles of first these lates not, therefore, under the necessity of dispuraging or telegraphic und, therefore, under the successive or suspensions of the successive of the success This is the difference between an independent tele- gularly won graphic journal and un organ.

In whitever receives our editorial endorsement, he understor In whitever reverses our summing concessions, we increase of a The star k will include all our evidenced specialities in curoful in this respect is shown in that we have never covered by HAMPION LIABNERS INSTRUMENTS. been obliged to retract or change our position on any Union Comp Naw GIANI SOUNDERS, PERFECTED, important points. We do not jump at conclusions, or question. sustain at one time what we are subsequently obliged to oppose or condemn. THE TELEGRAPHER being the - . Auto neknowledged authority in electrical and telegraphic one ment of some on the Transcramm, additioned in the control of t morely because two tail to comesse with merons, that connection versions the paper ridiculous by praising and extelling at this staten one time what we have before condemned and detices, which nonneed-not on account of any new light upon the and which it subject, but because in the meantime the proprietorship of certain patents has changed bands.

The renders of THE TELEGRAPHER are well aware The state of the remarks of the contragrammen. Heat is now the state of the contragrammen of t .6 communication reserves on array consequences graphics or proceedings of the attempts made through the dearest the system into practical use were samulally fivorable, tine system may provide in connection with duplex and what is more important, he preserved the knowlopportunities. Had it not been for Mr. STEARS the py). Cameteristically, no pretence even duplex would to-day unquestionably occupy the same by the content of the period o ed in that querier of what naturally time toy, of no practical value. Mr. STRARKS persisxs, in claiming for him a device versel, in claiming for him a device of 1-08, and expressly disclaimed retablished the fact that the duplex systeps may not as: of 1918, and expressly deterlained with the option of trainer, until to find 1900 of 1. Grypans, ten. March 2018 of 1900 of 19 subsigning a term of military in a primar daught for through circuits of collising length or limited and primar daught of the primary in the first primary in the primary in the first primary in the the to ridicule a system of duples the Morse system itself. Some four years after the

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22 DEY STREET.

NEW YORK,

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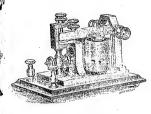
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22 DET STREET, NEW YORK.

The Railroad Sounder.



The Telegraph.

Lively Times in Telegraphic Circles.—Resignation of Gen. Eckert, Superintendent of the Eastern Division of the Western Union Telegraph Co.-Facts, Rumors and Fancies.

QUITE a isomation was oversioned in belegraphic-circles and among the brodeer and specialized at the interest and among the brodeer and specialized at the ortical Tomary T. Dekert, who has, show the few process or finest Timour's T. Dekert, who has, show the few process or particular to the Laderen Division of that research Superintendent of the Laderen Division of that prometally by suppless, although it was not manufactured by those geoparised with record tolegraphic cambina

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and faccourse support of the foundable Story Tele-graph Company is a very important one, and whether ne would consent to the transfer, if proposed, we are not into used.

not into uncel.

There are unpleasant whisperings in regard to the hold which the Western Union Company has upon the smalruplex, which it has pulled so industriously and quadruples, which it has putled so indistribusly and speak or much to develop. The personaptive inventor of that arrangement is a slippery entenance, and it would be the usual thing to thus, after the interment had been developed at the expense of the Western Prion Company, and had been so unqualifiedly en-olected by its officials, to track them out of it, it pro-

subte.
It is also runnored that negotiations are nearly computed with the Automatic Telegraph Company to altered the advantage to be derived from its system to the opposition to the Western Union. We shall probably be in a position to give our roaders more vertain and definite unformation in repuid to these matters because of the contraction of the cont All sets of remorate affect in regard to matters

Sinnected wan the telegraphic contest which is about I to be inaugurated, but it is hardly worth while for us I to be imagenated, but it is bardly execut water or no repeat them of thick time.

The properties of the time of the time of the Western Union conditionation and the companies conse-pring with them is to be very active and filter, and said impediably a postageted one. Further develop-ments will not Terr. Tribary term may rely upon being legal fully informed of all matters in connection therewith.

The First Crucial Test of the American Automatic Telegraph System. TO THE EDITOR OF THE TELDRIQUES.

The real form of the properties of the propertie

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Borring our Journey I Innoversally referred to the inverse composition of which were tribles dump a period new form of the control of the con and but, where I arrived lite at highest of the stans day, and thus port acidy over all the obstacles in the way of travel, and that test has been followed by the many of travel, and that test has been followed by the span which is more centred thus notice of the mode conleved most in the field of "electrical viciness." Assistence (including mere causer color, defigurement, and other chemical formulas), the discovery and applica-tions by myself of the mechanistics, or discharging has and described the section of the controlled of the color of described the section of the controlled of the color of described the section. The controlled of the color of the described of the color of the color of the color of the described of the color of the color of the color of the color of the described of the color of the color of the color of the color of the described of the color of the described of the color of the color of the color of the color of the described of the color of the color of the color of the color of the described of the color of the color of the color of the color of the described of the color of the color of the color of the color of the described of the color of the color of the color of the color of the described of the color of the color of the color of the color of the described of the color of the color of the color of the color of the described of the color of the described of the color of the described of the color of the color of the color of the color of the described of the color of the color of the color of the color of the described of the color of the described of the color of the c

GEORGE LETTLE, C. E., Passaie City, New Jersey, U. S. A.

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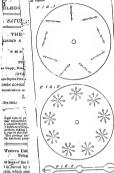
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From J. Fry.

Edison's Motograph.

W.T. Sprague, replying to an inquiry regarding this instrument, a description of which is given in this instrument, a description or which is book. " Electricity: Its Theory, Sources, and Ap-

his book, "Electricity: its room; plications," lately published, says: "I wished to include in my work the latest discoveries in electricity; hence I gave a description of the motograph. But when I wrote there was no other account extant, except that which I used; nor other account extent, except that which a next, one was an instrument in existence in England. One was subsequently brought over and exhibited at the Soirée of the Telegraph Engineers, where I saw it, and therefore added a few lines in the revision of and therefore added a low times in the revision of my book before publication. I clearly understood my need actors particulation. I treatly assures and the principle of the instrument; but it appeared to me principle of the instrument; but it appeared it me best to use Mr. Edison's own description, notan next to use set, sources our neserquest, not-withstanding the somewhat peculiar and confused

style in which it was written. nyte in where it was natures.

I will now endeavor to make the matter more intelligible-us to its principles, that is to say.

All recording instruments (not counting those All recording instruments their realist come which print in letters, though they realist come under the same generic principles) consist of a unser the same generic principles; consist of a poller, which supports a band of paper drawn roner, senion supposes a const or paper and an through the instrument, and of a style or pen pressing on the paper. In the mechanical recorders, payrong on the paper. In one mechanical recorders, such as the Morse, this style is attached to the armature of an electro-magnet, and when a current passes it is pressed on the paper, so producing marks; passes it is pressed on the paper, to produce of maker; when no current passes, it leaves the paper, which moves along unmarked. In some cases the reverse principle has been used, and the signals are shown by the absence of marks—that is, by spaces, instead of lines and dots. In chemical recordersof which Bain's is the original and type—there is no amgnet; the style presses continuously on the no magnet; the style presess communisty on the paper, which is moistened with some liquid capable of electrolysis and of union with the metal of the style when the current passes. A common form consists of an iron style and paper moistened with ferrocyanide of potassium. When no current is passing, no action occurs ; but so long as a current pussing, as setum occurs; one re using an a current pusses, the solution is electrolysed, acts on the style. and forming Prussian blue, makes a blue dot or time on the paper. Now Edison's discovery is based on a very simple

observation, but one which he alone has noticed. reveals a new action of the electric current, which appears to open as new a line of scientific research and of practical application as did Jacobi and Spencer's observation of the effects of the deposit of copper in the Daniell cell, which is the bush of our modern art of electro-metallurgy. He simply noticed that while the current passed the paper became slipperg, and ran more quickly through the machine. He now tried the effect of attaching a spring to the style, and behold! mechanical mo tion is produced capable of varied modification. The style will ring a bell while the current is passing, or will not as a relay and send a current muchanically, repeating the signal in one or a thousand new circuits. I caught sight of the instrument standing on a table annoticed at the conversatione,

and before soving its label, at once recognized it, and took the opportunity of a careful examination before others had discovered it. My friends laugh at me because I button holed them one after another and led them off to see something worth looking at; but after a time it was a hard matter to get a good look at it, as, once discovered, it became the attraction of the evening. The fact is that the instrument itself is nothing; it is a scarcely noticeable alteration of the common Bain's recorder. It is the prisciple which is important. Instead of a simple style or pointed rod, there is a rod fixed upon a torking-cradle held by a spring. A thousand prople might see it and think it was nothing ; but it is a cradle with an infant lying in it, whose future only the few prophetic minds can catch a glimpse of : and it must be remembered that only the prepared mind can ever understand the prophotic utter ances. In the vision of the Apoenlypse, how often is it said," He that both an ear, let him hear". It is so in science. Edison's description of his discoveris confused in language (in fact, I suspect it has passed through the hands of two or three compositors before it reached me), and it is only be "that bath an ear" who can grasp its meaning I think "H.B." can catch it, if he listens to the echoes of it which I have repeated; but if not I will enter into for ther explanation.

(Condensed from the N. Y. Tribune.)
Atlantic and Pacific Telegraph Company.

ANNUAL REPORT OF PRESIDENT ECKERY. The annual meeting of the Atlantic and Pacific Felegraph Company was held on April 28, at the effices of the Company at No. 194 Broadway. General Thomas T. Fokert was re-elected President. There were constructed during the year 72°4 miles wire. The lines and connections cover 14,612

miles of poles and 25,477 miles of wire, and brings them into direct communication with 1,365 offices. The number of miles of pole line in the direct control of the Atlantic and Pacific Company at the ass of the year was 5,997, and of wire 12,009.

The authorized capital stock of the Company is \$10,000,000. The amount issued at the end of the year 1874 was \$9,578,100, leaving a balance of 4,219 shares in the treasury.

The gross receipts of the Company for the year 1874, including the Franklin from Nov. 29 to Dec. 31 includes, were \$150.531 01; the gross expuses were \$290.111 97, leaving a net profit of \$51,422 01. This surplus and a portion of the Company's funds, derived from sale of its Treasury stock, were exsended in the construction and purchase of lines-The Company had on hand at the close of 1-71 net ussets amounting to \$107,113 41, in addition to its reasury stock. This sum is available for the extension and development of the lines and business. There were also on hand at the close of the year materials and supplies sufficient for about two months use. The Company is free from debt

of every kind. Since the beginning of the year the Company has acquited working preservation of the American Autonatic System of Transmission, which is protected thirty-six indisputable patents. The use of this cysical readily admits of instant change from ordipary Morse to automatic at the will of the operator. The Company has also purchased the exclusive the company has hiso purchased the exclusive right to the use of the Wheatstone Automatic Syson of Transmission in the United States and the Island of Cuba. This system has lately been putented in this country by Sir Charles Wheatstone. The Company has also parchased from the inventor, Mr. Thomas A. Edison, and from his business

The Company loss also particularly from the inverse the contract and suspine. Mr. George Harrington, the travellarly state of the contract and suspine with the contract and suspine the contract and the contract

and of automatic machinery audicient to elimical directions. N. H., they counsect, by contract, that has a block of the state of the Company's, where claids is in per net working order free year-lessed to Tar lays. No. S. The short confunction with these claids is in per net working order free year-lessed to Tar lays. No. S. The short connection with the preparent callet, which lacks less than a handred miles cant from the New Poundland count to con-duct communication rereas the Atlantic.

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ched, and was not disposable for telegraphic k. No ship except her could have carried an worx. No ship except her could have carried an entire Atlantic cable, and the company applied to the English and American Government, who, in consideration of the international nature of the work, tent the Atlantic Coupany (LMN: Agazam-mon, a 10)-gen zeror kino-ol-battle ship, and the steam (rights Ningara. As the cable had to be haid in two balves, it

he the came a question as to whether one ship should pay out her half first from one shore and the other join on, or whether they should splice in the middle join on, or whether they should splice in the middle and pay out to shore. It was fire some discussion is decided that the Ningara should pay out her half from reland, and that the Agamemon should then splice on and proceed, so that an American ship-month have the honour of hunding the first end to an English shore, and the English ship offer the

no Engibls showe, and the Engibls ship offer the last and board section contain.

Internal to our American contain.

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Internal to a subsection contains the bear people of a from the Nigara, from Ireland township the subsection returned to Engible. The next year, 1858, the subsection terror of the Engineer. The next year, 1858, the subsection contains the subsection of the Heutenant of Ireland, Mr. Cyrus Fient, who had been one of the nord tenregete prosectors, was foted and screenaded at New York. The cable next a few telegrams, and then declined, through imperfect insulation, until it refuned to speak. Recriminations and long letters in the press followed, and the cause of Atlantic telegraphs remained dead for

[Aug. 28, 1874.

six years. In 1864, through the exertions of Mr. Glass, managing director of the Tulegraph Construction Consensur—a company formed by the annalgamation of the firm of Glass, Elliott, and Co., nd the Gutta Percia Company—Mr. Cyrus Field, ad Mr. Saward, secretary of the Atlantic Telegraph Company, and others, sufficient capital was obtained by the Atlantic Telegraph Company to persuit them to enter into a contract with the Telepormit them to enter into a contract with the Teles-graph Construction Company for the attempt to lay another Atlantic cable in 1855. The Great Eastern and been engaged by the Telegraph Construction Company. Mr. Canaling was the engineer for the Telegraph Construction Company, and Mr. C. F. Varley being the electrician for the Atlantic Tele-

raph Company.

The pattern of the cable this year different from The pattern of the cable this year different from that of 1857.9. The outer covering of the 1853 cable consisted of strands of fine iron wire, that of 1805 consisted of homogeneous iron wire each separately covered with Manilla hemp saturated in tar. The cable was shipped on board the Great are cooled wis support on board the Great erm. Two-thirds were paid out successfully, a n fault of insulation occurred, the calde was at to the board to be handed in, and finally at. It was dredged for, but although hooked machinery and tackle proved insufficient to life at the expedition returned.

year, but has been repaired by Captain Walsh in the s.s. Minia, which the Anglo-American Tele-graph Company have just bought and litted out as

a calde ship.

This brings us to the present date as regards At-This brings as to the present case as regard AV-lantio telelegraph chromology.

At the present moment, then, we have the Anglo-merican Telegraph Company possessing the 1866 cable, the French Albattie of 1869, and the 1873 cable in full working order, whilst the Great Eastern

enthe in full working order, whilst the Great Leastern is by that time, no doubt, commencing to pay out her 1874 enthe from Newfoundland, towards freahulf, of the assure company.

Messrx, Siemen Brothers, who have understance to lay an Athantic adds for the Breet United Natate Cable Company, have shrouly laid to protein the company, have shrouly laid to protein the contract of the company have shrouly laid to protein the contract of the company have shrouly laid to protein the contract of to a point near the cloud of Newtonisman, in rota-ception Bay, where the end is houred. The steam-ship Dacia has shipped the English shore end and intermediate pattern cable which is to extend in all to about 150 miles from Ireland, and has proceeded to Ireland and Isid it, the end being buryed. The Faraday has abipped the main cable at Messrs, Sic-

mens' works at Charlton, has left the Thames, and E anesis works at Charlton, has left the Thames, and will some conneruce bying the cable from the point where the Ducia's cable terminates to the buoy on the other cable inlendy hist, up to Newfoundhad, Should errtain concessions held by the Augho-American Company, and on the strength of which American Company, and on the strength of which the original and ill-paid permotors of Atlantic tele-graphs staked their money, be overridden, the Direct United States Company will eventually land their cable in Newfoundland, and thus compete with their single cable against the four existing which their single cable against the four existing addes of the Angle-American Company; but we fail to see on what grounds this company, which al-ready touches at one point between Ireland and the United States, and is so very desirous, of touching United States, and is 80 very desirons of touching at a point still more out of a direct line between Ireland and the United States, can honestly call itself a direct United States safe, particularly as the original line was advertised as a line to be laid "from the const of treland to a point on the const of No. 11. of New Hampshire."

We are anxiously waiting the promised continua-tion of Mr. Pope's scientific "lash," collected and collated from that gentleman's voluminous library. "Asurey stood on his subscription list when all \$5 the rest had fled."

A CORRESPONDENT of Ashley's sheet wants him to stop the publication of Little's silly articles, or, in other words, "take a little rest." The writer falls into an error when he states that Edison and Little are disputing with one another. Mr. Edison has never replied to any of Little's ravings, and, we do not think, over intends to,

PROPERTY AND PROPERTY. raphy and the Interests of the Tele graphic Fraternity.

ept by the employment of a double line. Taking of its merits and demerits into account, it is so

OF THE TRANSPORTER tr permission I will make a few remark August 1, 1874.]

120

THE TELEGRAPHER

THE TELEGRAPHER A JOURNAL OF

ELECTRICAL PROGRESS.

I. N. ASHLEY. - - - - - - - PUBLISHER.

SATURDAY, AUGUST 1, 1874

vol. X

WHOLK No. 190

Original Articles.

Original Strikes.

Original Strikes.

Original Strikes.

Original Strikes.

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(August 8, 18)

in of the period of the period of the remains of the period of the remains of the period of the remains of the period of the case) its varied functions. I term the decare the refore the resident Law. General Layran, C. E., Passale City, New Jersey, U. S. A. J.

THE TELEGRAPHER

great distance and the period of the control of the

nic years. In 1855, through 1,260, 1921, 1913, 1921, 1

Company, Mr. Canading van 1146, 1203, 1204, 1205, 1204, 1076

** CRAIG, New York, precising 1, 2. 3.

* We have before us a pamphict-two pages on "Lattle's Automatic System e-graphy." American editorials, 1-69.

March 10th and

* By the terms of your communical eth 10th and 17th last, you accorded to B to of six mouths, from the first of April 2016

THE ROOM OF THE PARTY OF THE PARTY. raphy and the Interests of the Tele graphic Fraternity.

n on Tue Transmitten. r permission I will make a few remarks in mr californi of the 21st inst., on the fact [August 1, 1814, below ranks is not inimical to the face

the same of Smith connected with Prof. More, in apages 31, 1905,

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war, with the setting up of the little little little and tolorous.

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except by the employment of a double line. Taking all of its merits and demerits into account, it is so greatly inferior to the Morse and other systems in use made or attempted. If it should be, we have no station not far from New York, happened to

doubt but that The TERMIZAPHER will be able to attend properly to the case.

It is dangerous for the Journal to depart from its exhibited policy of general platitudes in its edito-rial columns, or to undertake to tilk with The Text-policy of the Colonial Part of the Sec over 84 cote. It is quite probable that this fact will be recognized at head-quarters, and that you will for the future be the Severely rone explanation of the universe services in mas-pendent telegraphic journal and an "organ" was ex-rellent, and its sharp points are fully approximed by the fraternity, more especially by those who are emcrellent, and its sharp points are bally appreciated by the frateritity, more expircially by those who are em-phoyes of the Western Union Telegraph Company. You are making The Praximarium not only us in-structive batt a readable and inter-citing super, and have the good widebes of a large unjority of the resuling tule-graphers of the country. May you presper in the good wides and any the subscription list increases with a work, and may the subscription list increase with a rapidity commensurate with the deserts of the tole-graphers' paper. Of advertising I see you have plenty,

Some Rulls-by the Pernetrator. . saw Paress of You Terramapure.

Coxygany to the general rule of driving your cattle" to other folks' pasture, I'll seknowledge the security of the property of the control of the cont

Necessity for a Telegraphers' Association.

"Jone Lock Switch" at the termin marked that "he didn't see the nee of up over night." I trust some one w something more than 1 am new now, or corridor that if such an association is ease sheal interioring at large will respond to the cell, of it short time we would have a thirting and necluser ratios, of which we will be prund.

C. WETAIRAL

[August 8, 187

Telegraph Train Orders and Report STEVESSON, ALA., Jag

To your Passon or You Transparents. Some time upo several interesting priic above subject were published in THE TELES I am not a train desputcher, but have weeked t out roads, both north and south, but on more ent ponds, both north and south, wat on non-have I found so simple a system as is user read—the Nushville, Chattanouga and St. L illustrate I will briefly mention two or three In giving unless to extra and construction

Run to Chattaneoga extra (12).

To Carroll Work between Sprenson and Shellor

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In think, over items to. and the expedition returned.

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bottome a question as to war-pay out her half first from ogruphers' Mutual Benefit Association.

old on, or whether they shot diment of requests for assistments non-ad pay out to shore. It was 4 AND 55, UP TO AND INCLUSIONS leckled that the Ningara 4 AND 55, UP TO AND INCLUSIONS

July 25mm, 1814.

obtained by the Allantic Tel₄ **SITEMENTS NOS. 60 AND 61.

permit them to enter into a cont/61. 1905, 1742, 2006, 29181.

graph Construction Company fo assersements Nos. 62 and sensitive transler Allantic clock in 1955-279, 287, 286, 288, 381, 2008, 451, 450, land been engaged by the Tel₂ no. 901, 1163, 1460, 1502, 1503, 1715.

Telegraph Construction Company. 31. Commission Sensitive translers of the Company. 31. Company

By attenuous efforts capital was raised for nother attempt, in 1866, to embrace the season A ATHANATU 2 FIRMATIAN TIME.

A private spile the Allamin clarks in sections de factore and large of a complete cash and the factore and large of a complete cash and the more measurement of the company
Great Dealers and the Farance of the Control of the

and the Faraday start ELEGRAPHIC FRATEHNITY. SATURDAY, AUGUST 1, 1874.

THE TELEGRAPHER:

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the Stock Exchange,
As it is the great wintmurks EVERY SATURDAY of SEPEREY ST.
As it is the great wintmurks EVERY SATURDAY of SEPEREY ST. TENTH VOLUME.

> TERMS OF SUSSCILIPTION. e Copy, One Year, INVARIABLY IN ABVANCE.

graph was made. The te Orphes Flye Create. Mesers, Glass and Ellio wich, each manufactu required, the core be J. N. ASHLEY, Publisher, 28 PERRY NT. . New York

London, The laying on by the Atlantic Teles Bright, Canning, Wood Special Notice. At that time the Gr. Legrate of persage or first Paramaceum, a launched, and was no sure, persage or first persage or first work. No slike exception of service is the control of sure work. No slike exception of stress, subscribes when or sure, persage or first will please hand the name of the complete or stress will please hand the name of the complete or stress will please hand the name of the complete or stress will please hand the name of the complete or stress will please hand the name of the complete or stress will please hand the name of the complete or stress will please hand the name of the complete or stress will please hand the name of the complete or stress will please hand the name of the complete or stress will please hand the name of the complete or stress will please hand the name of the complete or stress will please hand the name of the complete or stress will please the name of the complete or stress will please the name of the complete or stress will please the name of the complete or stress will please the name of entire Atlantic cable, at carrier

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safetts. Two-thirst were prime non-loss consistency of the most year | more | 1 can inhern you that there we inflet to the bows to be insuled in, and finally | never replied to any of Little's ravings, and, we do not be meshavery and tackle proved insullicient to life | not think, ever intends to.

wires of the company can be pinced and operated underground without causing too great an outlay by the company, and without injury to their practical This subject is one of such pressing and daily in

ereasing importance that its practical consideration cannot be much longer delayed, and we are pleased to learn, on such excellent authority, that the Western Union Company has determined to attempt a practical solution of the problem. The first objection made by Mr. Ouros, according to the Shade Zeitung-that of the difficulty of working satisfactorily the underground wires-would have some weight if it were proposed to entry them underground for a considerable distance, but for the few miles of subterraneau lines required to relieve the streets of this and other cities of the maightly and combersome telegraph poles, and the naisance of a multitude of wires crossing and re-crossing in all directions over the streets and inclidings of the city, the static induction would be scarcely perceptible in their

estante d'ione The further objection—the damage to which such rices are subject from atmospheric electricity or lightning, can be effectually guarded against by proper arrangement of lightning arresters, and by proper and thorough insulation of the wires. This is provided for in a system of glass lined iron pipes, through which the wires, properly insulated, are conducted, which has been patented in this country and in England, and which we think must eventually be adopted for this purpose

The real and principal objection of the telegraph managers is disclosed in the latter part of the article and that is the expense of such a system to the telegraph companies. This is unquestionably a natter; but the expense can be so divided, by having the wires of all the companies and of private parties included in one system, as to make it relatively less merous; and by this means a large part of the diffi-

Sill probably to restrict one or remot. The case United States for final decision. It has described to the control of the con

Adde was hipped and the country between which we was proposed to the country between which we was proposed to the country between which we was present to the and 17th hart. I can inferin you that there was no person by a quee of six months, from the country between
mphy and the Interests of the Tele graphic Fraternity.

n or THE TELEGRAPHES.

r permission I will make a few remarks in

The Transmission of the Superme Vent of the Su hand, and bying his right hand upon some trans general as a remove engaged in it. The radiators, a conductor of electricity, which becan all operative required, and the rates the other electrons. If induced currents are made ion, will be as great us at the present the other reconstary circuit in the usual way, the deed be no wiser, figuratively speaking will arise a quivering in the nameles of the man's rightsh bird who merely hides hi

will arise a quivering in the numbers of the man's dright, bird who merely hidse his break and hand, which preduces a vitration in the resonant a because the causer we the enemy the stance sufficient to be sarily beard. As the set see him, if we revelock the first that which results from this createst of the man's original real value from the window with the somaling electrical is always or the art section. pitch with that of the vibrating spring which less system." Ground

The principles thus briefly stated are a disort RDAY, NOVEMBER 28, 1874, and by Mr. Gary, and, or far, no one has appear

one of wire. His experiments ex-

to claim to have made the discovery before him. To are of great scientific interest, and as Mr. Guay h WHOLE No. 437 already shown a genius for applying the principles === electrical science to practical results, we hope that Original Articles.

become an invention-

and closes the primary circuit.

secome an invention.

In a fature number we shall indicate in detail, of raph. System and Condensers, the methods by which this result promise to be a path. mass measures of which can be ready say that after HENRY we are indebted for his very matter of fact Monas writing has been sent thou; dignation (many years since) in rel long ince, and reveived by this method with learth fullows of wife. It is exacting one handredth part of the buttery power regunofar as to develope alternate and counter one handredth part of the battery power regiment as a coverage afternata and counter employed. Very competent judges, as good, probabilis or believe up to the seventh order environment of the country, are inclined to this ¹/₂ consumed to the scientific world, itself-ow we have in this country, are inclined to this ¹/₂ discovery. (See Sillinears), a Justice by this method the speed of cable transmission can ny ture mercaon the spica or came transmission can greatly augmented. Experiments soom to indioegra, in 1833, discovered that iron co

greatly augmented. Experiments soon to manage of the colls (see .Innali del Sci-that the Telephone is the basis for a practical ma 333); as a consequence smaller helices plex telegraph system. ness corganyo system.

From the foregoing concise description of this itay, in 1831, announced the su From two toregoing concisu description of the 16th y In 1814, automated the same remark-esting and brilliant discovery it will be seen that an an psychostic discovered by the third were click in the naturals, expressed in set is marginal more and the natural sequences of the property
only 1810, that Mr. GRAY was not responsion we account of the telephone which was published in the 1835, made his extended or levent of the despites which we published it is BEN, made his extended communi-teer first leven contractively expect by the defigure of a right combination interrup-tages in all parts of the country. For his mile appointed backey, January, 1823, 183, and in the country. For his mile published backey, January, 1823, 183, and in infinitely desired to the contract of the country of the country, 1824, 183, and in the country of the country of the country of the country of the his language, used to describe the all possible of the country of t

use totograph company was soldered to devict, and the company applied to the Cited State Credit with the Company applied to the Cited State Credit was constructed in the Company applied to the Cited State Credit was constructed with the construction of the Indian Company applied to the Cited State Credit was constructed with the Company applied to the Cited State Credit was constructed with the Company applied to the Company applied

recraft janctions in connection with my (automatic) telegraph are as follows: "overflow dam," by passing to eath small way of high probability of the description of high probability of the decomposing force of the probability of the decomposing force of the decomposing f d 17th last, you accorded to an to che other, from the first of April course us, or

or Overflow Rhowstet Dam. Geogram Layres, C. E., Passaic City, New Jersey, U. S. A. PROPERTY OF THE PROPERTY OF THE PARTY OF THE

except by the employment of a double line. Taking all of its morits and demorits hate account, it is a greatly inferire to the Morse and other systems in one that it cannot be profitably employed, either in connection or in comparition with them. metern as in computition with temin."

(2.) "The value of the rhepring does not conside in the annual relation which come not conside it the metern of these which come now, but in the present of the pr (4.) "The automatic system, however, is especially unfatted for the transmission of press reports, as this process enables best one status to receive at the same time, whilst the Morse wires can be connected throughout the country, and the news sent to every office with a single manipulation." with a single monipulation.

(3). "The double transmitter, an apparatus for welfling land ways, over our orien at the same time, that has been considered to the same time, the same comparing to considered place many presents of the considered by the possioners of various compeller, considered by the possioners of various compeller, the considered by the possioners of various compeller, the considered by the possioners of various compeller, the considered by the particular considered by the considered by the considered by the particular considered by the consideration of the considered by the consideration of the consid

1. Is humalitating that gentleasen who have the assur-iance to present thermofers to the shareholders of that great reempany, should be known to have cherished and promulgated such psouldant ignostence as to the science of electricity and triegraphy, and at this late day, as we see unboddled in beaver extract. Fermit into to point out out of the more extraordinary later-ments embeared in the surfacese which is here. oted: (L) The "wonderfully rapid means of transmitting

musts embered in the sentences which I have a [10]. The "weatherith regul muses of formalities [21]. The "weatherith regul muses of formalities sentence of the Carlo of the Carlo of the Leffers and sentence of the Carlo of the Carlo of the Leffers and large account for the Carlo of the Leffers and large account for the Carlo of the Carlo of the sentence of the Carlo of the Carlo of the Carlo of the must be interested, on a fire convent of the Carlo of the must be interested on the Carlo of the sent of the Carlo of the Sent Yant for over a must be the Carlo of the Carlo o The text forms or text Transactions, and allowed the declaration of the collection of the product of the produc

[August 8, 1874



Fast Telegraphy.—The Western Union Compan Caving in.-The President and Electrician Give it Up.

THE ELECTION OF THE TELEGRAPHES.

THERE or four years ago the annual address



her cables town ships both started from contracting firms could ships start at the sar opposite coast would in

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eral Crossed to his advocacy of the intro-duction of the postal telegraph system), has offered the commons, sum of \$150.00.

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Bear's Principle of Balancing Batteries. Burst Netwight of Madaretic natures.

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How, then, equi quantity be disposed of entirely? How, then, can quantity be disposed or entirely: Simply by omitting the sulphate of copper or vice con-suming arid. And just here I would say that my ex-periments have taught me that in the blue virial lat-tery action does not depend upon the give being in-runtact with the node, although this fact may be old

The second of th large action does not depreid speak to the the below in stancis with in our diffusion; the loss care was all and we will then previously are not all all the weight of the contract and the contract of the contract and the contract of the large properties of the contract of the contract of the large properties of the contract contract of the contract of the contract of the contract contract of the contract of the contract of the contract contract of the contract of the contract of the contract contract of the contract with the contract of large cell of para water, being careful to prove its contactivity to consecuting apported probe and working that instrinces after harting first hard similar plates contacted and defection alliquations, with the same treath a careful and exceeding the contact of
cells in a mile batterly for the parquese of increasing the heating of the many quantity of may be cereated in the like of the cells of the cells of the cells of the cells of R failed to do see. Still not satisfied, I proved the cer-reation may experience accrete and interest through a cell of the cells of the cells of the cells of the ed. of cotton, and three connected the some insufries of the cells of the cells of the cells of the cells of the latter places in both creating the cells of the properties of the cells of the cells of the cells of the part and the cells of the cells of the cells of the part and the cells of the part and the cells of the cells o

-[Action Mass Battery, 10 Cells 1 2 Substate of Corneral and connected in opposition, thus: Z - Harter Battery, to Cite - C

Z- [Sothe Main Battery, Scrette] 18shibaland Course 1 Finally, I arranged the connections as follows:

...C l'Artise l'attern 7 In this arrangement, each of the three butteries of

In this list method, relay No. I responded pron-pon choing key, while relay No. 2, with the

THE TELEGRAPHER A JOURNAL OF .

ELECTRICAL PROGRESS.

N. ASHLEY, - - - - - - PUBLISHER

SATURDAY, NOVEMBER 21, 1874.

This question was put in another form by Mr. Presce.

that the same of Mr. Ayrion is, "In day weather the lims of selegraph in this country when the earth was builded in the street of Mr. Ayrion is," In day weather the lims of selegraph in this country when the earth was builded in the street of the same and the same in rain. Lexting out the city pertiess, it will run as a high as wight, and seldom as low as four millions. If If we down the insulation from this city to New p Vers, the insulation of the ranse win will measure to the city line of the run of the result in the city line of the run of t

| Machinery | Figure
Z - [Inscrice Battery, to Odd-] - C

.. Z [fnactive finitery] C Belley No. 1... C [Buschive Battery] Z Bellay No. 2...

mindser of elements, the active but sed of Hill's and Daniells' cell er being compose adpliate of copper).

adjustment possible, remained invariably marking S. J. M. Buan.

STURDAY, DEGRAINER 6, 1874 where the representation of the significant content of the significant cont

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C-Delive Non Batters, lottered -2 more selentific than practical.

Real advancement in telegraphy is best shown by comparing the results obtained with the means em-Z - [Inactive Statery, to Colle] - C loyed.
In this connection it is proper to refer to the Automatic Telegraph Company, that operates a single wire extending from New York to Washington, a distance of about 300 miles, and doing a local business with stations at New York, Newark, Trenton, Philidolphia,

Bultimere and Washington. In this circuit there are fitteen relays. The line castal publisher and of unrollable ope

inalty, I arranged the connections as follows: .Ker. .. Z [Inactive Battery] C......lirley No. 1... C [backive Battery] Z...... Relay No. 2...

.....C [Artive Hallers | Z..... In this arrangement, each of the three batteries con-district of the same number of elements, the active but very being composed of Hill's and Banielle' cell-

nd connected in opposition, thus :

In this has method, reiny No. 1 responded promptly pon choing key, while relay No. 2, with the most elicate adjustment possible, remained invariably unif-S. J. M. HEAR

orid."

In a free and onen discussion I should say it was

past year was read and accepted, as follows: REPORT OF THE OFFICERS.

toleraphile journals are now directeding very forely the displicat transmission system, which is more in me in this country than one other, and with prest attendancy. The capacity of a wire, however, or alterations of the fastimusts in removeful with the compositing tools are and condensess required, it might approximate the states and condensess required, it might approximate the balance, more suppossible to we made understand balance, more suppossible to we made understands Under my elementations is there as much weather. Comer he erremited never the trace and one performed in this country with four operators and one wire with the duplex system as is performed by two operators and one wire with the Hughes printer in

ledgium, Germany and France.

In the central station at Paris, we see them working
the Hughes instrument at full speed on the long see
cuits, Paris to Harre, Paris to Brest, Paris to Mar cuits, Paris to Havre, Paris to Brest, Paris to Ma-seilles, Paris to Lyons; also on the International, Par to Brussels, Paris to Berne, Paris to Berlin, Paris Baver, England. When I see this instrument works to its full emparity, or say twice onlineary More a gree upon those circuits, in rain or untavorable weather, on forced to make comparisons as to the ecoefficiency of their systems with the monter in the the business is performed in my own condition

My report refers to the amount of looks - - perform quired to perform the service in each of these all stations, and the number and kind of instrum

iru. If the French can norform, and well welform on one wire as the English on four wires of the sum length and resistance, with proportionately less open lors, and say one twentich the battery power using one and the same battery for the or six lines using one and the same sattery for five as a consistency of cannot be desired that practically the French speed on of telegraphs is not to be despised, and that it night be substituted even in England or India with

ort.

north as mean into details name this subject. If I do not in any way wish to forestall an official report DAVID BROOKS Philadelphia, Aug. 21, 1874.

.The Telegraphers' Mutual Benefit Association Annual Mosting.

THE annual meeting of the Telegraphers' Mutua Benefit Association was hold on the evening of the 11th hote, at 145 Broadway. New York. Among the delegates percent from a distance were Mes-re, A We-ron, Jr., of Baltinesce; J. W. Tillinghest and S. Hucker, of Baltinesce, and F. W. Jones, of Checaps and a good representation of the members in this city and vicinity were also in attendance.

Mr. R. H. Rochester was elected Chairman, and Mr. Wm. Holmes neted as Secretary.
The report of the Treasurer and Secretary for th

During the year ending November 1 the number of eaths has reached Is, and have occurred in 10 differ

BRITISH PATENTS.

fraction Techniques in 1973, . From the statistical report on

ITALIAN TELDARAPHS IN 18-15. From the Manager report on the working of the telegraphs in Italy during the year 1873, which has only recently been published, we learn that the total length of these lass throughout the kingdom was upwards of 2,000 kilo-meters, as command with 8000 kilometers in 1861, whilst the

Hartung Transmarker in 1982. John the schelded appeal on for the company of the c

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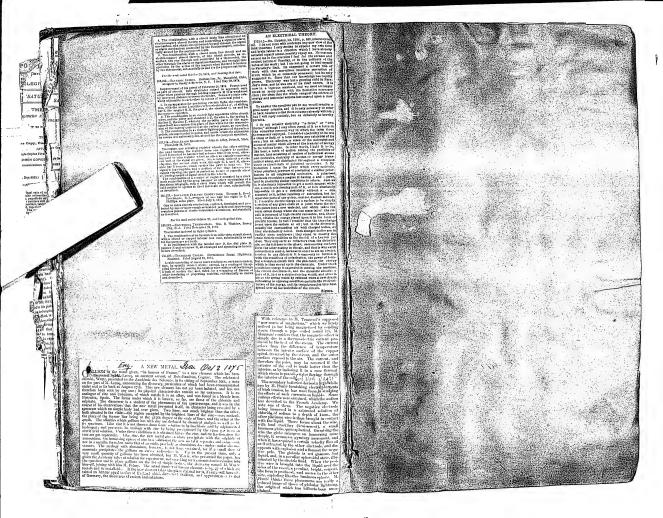
ELECTRO-MAGNETIC APPARATES FOR CLOCKS, H. P. Greoward, Missouroud, South Harking.—Dated 2th Septrador, 1871.

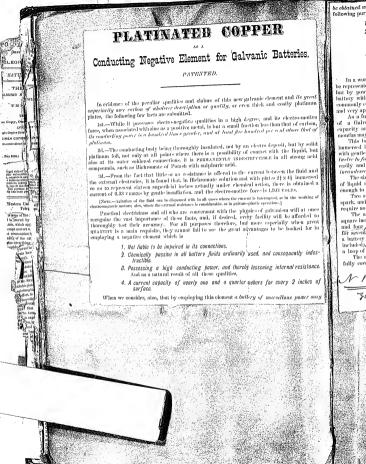
It is recommend from contrast to the state of the state o

provided with similar appointing. R. Wethersonia, MAGNETO-ELECTRIC MACHINES, R. Wethersonia, Prime's object, -bated fills Septimber, 1874. This invention relates to apparatus for producing currents of electricity by mechanical power. The said apparatus differs exsentially from other magcurrents of electricity by mechanical power. The solid apparatus infifers essentially from other mag-cial apparatus infifers are sentially from other mag-ness and hobbits and the mode or the electro-nageness and hobbits and the mode or the electro-tal apparatus of the electronic power of the which electric currents blowing in the same-direction relationships. In nearly all of the previously can be expected by the electronic power of the electronic power reads are obtained by moving a bobbit or aromature lectronic or lectronic power of the electronic power of which the thin three ballets of the wire convolutions, which the three three of the wire convolutions a manner that these bards and an amount marked which the one side of the core devices on the unity is relief passed bermaterly before poles of oppositionity. The electric currents is induced flow in equal thereins exhibit a direction of the contrary, the contrary of the

Type Composing Machinery, R. Winder, Bulton,-

Partie Counters of M. Hinner, Enthur., Button.— Pathel 14th Septrader, 1874. This relates to type composing machinery networked by any convenient motive power and controlled by sherricy; and consists—First, in controlling the provides the property of the p climism being employed to complete the setting on edge. Sixthiy, in employing as further means for placing type on edge a grooved or notelect wheel or ddley to carry such type a quarter revolution and deposit them on edge on a pintorn, Seventhir, in combination with the lifth and sixth Seventilly, in combination with the fifth and sixth heads, armiging type in column by mans of a col-leving box, compositor's slick, or lise equivalent, surfacely seven or other mechanism. Highthly captured by the seven or other mechanism. Highthly eigerted from the reservoirs at once and in my de-sired other, by making use of a large number of containers, so that any dedsed type characters shall be in several considers, most intracturate bringing to be several considers, and intracturates bringing be in several containers, and furthermore bringing the wires of the ejector in electron mignets so chao-together and in such order that may desired combi-nation of characters can be ejected at once from the reservoir. Ninthly in enabling an operator to work several machines by means of an electrical connec-tion operating through synchronously revolving fin-ger-sattached to each machine.





be obtained within a small compass and conveniently portable—its successful applicability to the following purposes must be apparent to all.

- 1. Electrobialing and general galvanoplastic operations.
- 2 The Production of Electric Light which requires not only a high electro-motive force, but a strong quantity current.
- 3. Working Electro-magnetic Motors.
- 4. Heating Platinum Wires as in Electro canterv.
- 5. Submarine, Military, and other engineering operations.
- 6. Short Circuit (c. y., District) Telegraphy.

In a word, in all cases where it is desirable and important that the consumption of zinc should be represented, not in a great measure by wasted energy as when carbon or platinum is used. but by nower actually obtained and utilized. Hence, though the first outlay in constructing al battery with this element must necessarily exceed that of the more clumsy and inferior kind commonly cumboyed, yet it is believed that the economy in zine alone, not to speak of many other

and very apparent advantages, would far outweigh any such objection. × As a further illustration of the adaptability of this conducting negative to the construction of a Galvo-cautery apparatus for bloodless surgical operations, the mere reference to the expacity and dimensions of a battery extensively used for these purposes during the last nine

months may not be uninteresting. This battery, which is made up of four cells with zinc and platinated copper elements, when immersed in Bichromate solution so as to represent sixteen inches of surface under action, with with gentle agitation, heat, to a cherry red, sixteen inches of No. 21 (B.G.) platinum wire, or from theire to fourteen inches to whileness. The same bathey when coupled for quantity, which is easily and quickly done by means of a switch, will reader eight inches of No. 10 wice

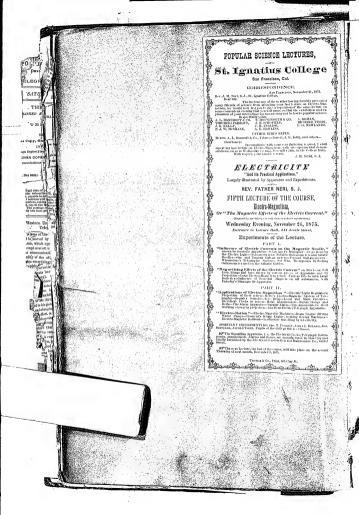
The size of the box containing this battery is 31×61 inches and 7 inches high. The quantity incandescent. of liquid required to charge the cells is 28 onnees, which has been found by experience quite

enough to last during any cautery operation. Two such cells have been found quite sufficient to work a Rumpkoff coil giving a five inch spark, and any electro-magnetic motor for the heaviest sewing machine, thus far tried, would

The actual cost of manufacturing these negative plates will not exceed (wenty-five cents per require no more. square inch (both sides covered) and a complete battery such as that referred to, including box and four /lass cells, would not cost, to make, over sixtrem, or at most, seventeen dollars. If sold for seventy-five dollars, it will be the cheapest apparatus of its power ever put into market, and a battery of two such cells, costing to manufacture not over eleven dollars (box and cells included), would be sufficiently powerful for all ordinary cantery operations—as it would heat a loop of fully 24 inches diameter and all other instruments usually employed for such purposes.

The application of this invention and the various processes for preparing plates have been fully covered and protected by LETTERS PATENT.

NB A saving of not lef them seety her cent is



December 19, 1874.1

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Correspondents Our columns are open to free discussions on all Telegraphic endects, with out distinct in of person or

No notice will be taken of an onymous communications

The Other Side. To rue Eugen of The Telegraphen.

THE TELEGRAPHER for some time past, and especi-THE TELEMENTIES for some time past, and especticly of late, has endorsed the automatic system as long the last and most practicable method of realized cheop rates for felegraphic service. In a nevent efficient at the engineers a statement that the system is "not immunal" to the skilled labor of the Morse system.

remained "species accesses on the Marie species. Several of interpretable, as well as myord, cannot subserved in fig. friends, as well as myord, cannot subserved it, but are open to reasonable contribute. He would suppose that the Automate system will be supposed to the Automate system will be supposed to the several supposed. The Laborator system was supposed to the several supposed to the several supposed. The Laborator Several Seve The work of preparing a strip for the Automatic transmitter requires a certain amount of time, after wards touther time for framenission, and still other time for copying atter the reception. Touching this consid-gration of time, we find the Morre operators performing in-antascousty the work of transmitting and copying. the rely strug over one half in time, as the message would be ropted ready for structs; by bloom to time a capied in simply preparing the slip for the Au-tomatic. To counterladance this, the Automatic sybounts. To counterbalance this, the Automatic sys-tem med more than double the number of employers of the Morres system in order to accomplish the same work in a given time, as every panelized operator is active that more works can be copied from an instru-ment in a specifical period of time (all though being equal) than can be translated from strips and written

out. Should skilled labor be employed by the Automatic

colors of the color of the colors of the Attenuity of the Attenuity of the colors of t Boss upon 1 theory can into some except except.

Mr. th. H. some one of regular the population of the state o

THE TELEGRAPHER.

some between a band reported marky here to be a compared and the control of the compared and the compared an

Surcessful Working of the Quadruplex,-Good Time on President's Message,-Reduction of Salarine ate

an Sakarton, etc.

The Charles of th

In time between there is given minutes after it was covered in turney, seen quarterly, in our crimetion covered in the covery quarterly, in our crimetion, covered in the covery quarterly, in our crimetion, and the covered in the covery cove

Judging from a conversation in regard it tills affair over one of the Northwestern days since, between two well known many

A SUT has been common and otherson.
A SUT has been commoned by Moort
Unit; and James B. Brown, pointiffs, agal
Goss, H. Harrington, Goss, Little, Thomson
The Automatic Polygraph Compuny and if
Telegraph Company, defendants, in the Sqi
of the City of New York, in which the plain

THE TELEGRAPHER.

December 19, 1874-

water transfer of the American St. The Telegrapher and Automatic Telegraphy. We print this week a communication from a tele- President's message between Washington and New WE point this week a communications is now a property of the ways and the graph operator on "The other side" of the subject of York last year, which, he says, states the average autonimite tengrapay, no remains costs an assume a wages of its employee to me sory means of a special feet of the telegraphic fraternity, and the lift he will refer to that report he will find the salaries

of the telegraphers of the country. withstanding its criticisms of the paper. Our conomic some count by obtained for its premary rune's now of the are freely open to the document of all matters of telespace freely open to the document of the document of all matters of telespace freely open to the document of the document of telespace freely open to the document of the document of telespace freely open to the document of the document of telespace freely open to the document of the docum graphic interest, and if in our editorial treatment of graphic interest, and it in our conormi continuous auch subjects we are in error, we are willing to be con-requires practice and skill to become expert and rapid vinced, and acknowledge our error. The communities in the preparation of the matter for transmission, and vinced, and acknowledge our error. "The communicate" in the preparation of the maximum or transmission, and the onormous increase of business which would follow then of our correspondent "Moreite" is well and temtion of our correspondent "Morento" is west uses some the onermons increase a susmess which would be general introduction of the automatic system to general introduction of the automatic system. we doubt not that of many other telegraphers.

ges for transmission by the automator metallicense axes in 10m. It would use a necrossate the coupling force of the delivery after transmission occupies time, and that more operators than would seem necrossary with the for delivery after transmission occupies their most time in this instance time is money. The question really tinelness as it now is. in one measure case is soony, are spectron costs; unsuces as a new re-le, so tar as telegraph companies are concerned, whether Prom a personni examination of the matter we are the aggregate cut of the service is as much or more convinced that it requires as much intelligence and the aggregate cust of the service is as some or some convinces that it replaces on many some does for I than it would be under other systems of telegraphy. Skill to make a first class "pancher" as it does for I than it would be under comer systems or torego-people skin to make a first case. Paracase in it is, then that objection would be fatal to it. We good operator, and automatic telegraph companies, If it is, then that objection would be made to a. We good operator, and automatic vergraph composing, punching muchines now in use more rapidly than the other telegraph company would soon fill its offices with paneming modernes uses in one section of the ordinary systems. \$40 operators if they could do so with salety to their average time of transmission by the originary systems. She operators it they come so so wan shery to three It certainly requires practice and skill on the part of business and profit to themselves? Besides, we have It certainly requires processes and sear our use part or quasiness and provide the transfer of the business to do it meter claimed or believed that the automatic system rapidly, but so does it require these to transmit rapidly was to entirely supersede all other systems, but have rayoniy, one so uses a require sorse to maintain reputity was to country superstant on our cystems, when thus prepared, the mess intrust selected and held that, while it would be most up any unon operant in non-come proporting too meet advantageous on main funter and between the printing advantageous on main function and between the printing advantageous on the printing advantageous or the printing advantageous advantageous or the printing advant and certainty that is not attainable by any other teles and offices, it would necessarily be worked in conju graphic process. The labor of a number of punchers tion with the other systems of telegraphy. posty, which is not possible under any other system. employment to as many operators as at present, and In case of the interruption of a wire from crosses or at as satisfactory renumeration as now. breakages, the accumulation of baseness for an hour terakages, the accumulation of baseness for an hour can be worked off in a short time, and the nature time metined to give the quadruplex arrangement the cre-

Serious reserved, and there is consequently, no un- STEARNS the credit one him for making the duri necessary delay in doing it. If the amount of business to practicable, and to his application of the condet he done were limited to that which is now transmitted. probably more than to mything close is due the sur it might, perhaps, cost meanly us much to do it, except- of the quadruplex. ing, of course, what is saved by the smaller number of wires as at present; but by the automatic system the it would not be found practicable to work the quadwhole time of the persons employed can be utilized, plex successfully on ordinary wires, but that it we and nothing would be lost waiting for circuits etc., require conductors either of a large size or with y which every practical telegrapher knows, on Morse perfect insulation, and as we understand, the expelines, interferes so seriously with the unnount of work ence of the Western Union Co., thus lat, has prowhich an operator can accomplish. The saving of the correctness of our origin then three-effected, in a large office especialty, is a very We are watching with interest the experiment important testor in the problem of expense, and renwhich are being made with the quadraples, and we

the telegraphers themselves that our correspondent recognize its value, whatever we may think personn and telegraphic residers generally are most concerned. of the individual who circus the credit of having a It is argued that under the automatic system skilled cossfully adapted it. It is afficion that moset the automatic system cannot externily proposed by the delegraphic later with be at a discount; and, as we have before remarked, some of the promoters and added to the "Organ Hasiness," We referred somewhat. vocates of the automatic system are responsible for harshly in this connexion to Mr. Geo. B. Parscorr, t volutes of the informace system are responsione on anison, and the Western Union Company, who seem to the impression. In making out their cases so see electricion of the resect communicompany, who seem to be associated in what we considered an attempt action of pusses myor, over more function on company of the employees at execodingly small figures—
manufacture capital by excessive premature landati much lower, in fact, thus persons suitable for the work of the invention and presumptive inventor, and in the

pendent refers, in this connection, to the report of Mr. HARRINGTON of the trial on the transmission of the th operator on "The other side" of the knowledge of York hast year, which, he says, states not accom-cantle telegraphy, its relative cost, its bearing wages of its employes to be forty dollars per month. upon the interests of the telegraphic fraternity, and the life between the proper position of Tim Theoremson in its consideres of the operators engaged in that work to have been thousand fratament, as the representative of the interests put down at \$100 per month. The relativist of the interests put down at \$100 per month, the relativist of the control of the cont t use telegraptiers of the country.

We are pleused to publish this communication, notmore pleused to publish this communication, notmonth-which is, unababtelly, lower than suitable per number of them were required. As before stated, it use general introduction of the automatic system, would create a demand for such skill and experience To may be conceded that the preparation of the messes that would insure its proper and adequate compensages for transmission by the automatic instruments and tion. It would also necrostate the employment of

graphed process. The same or a name or or possible with the wind of the horizons, and the necessity for employed increase in the lustness, and the necessity for employed automately, worked at the minimum of its speed. It is goperators to work circuits by other systems in con-reciders possible the utilization of a wing to its fall ex-rection with the automate, would undenbtedly giv.

on be worked on in a short time, was the outro time measure of or the quantuplex grangement the or utily which such interruption continues can be utily which at deserves. In this he is mistaken. We have during wasts such interruption commutes can be more where is observed or argued against the madra plex the transmission when the difficulty is remedied.

95 k was not feasible or practicable. We have astransmission when the difficulty is rememen. ** | n was not restitle or practicable. We have useer other systems such necessation of business too to be what every intelligent electrician well knows, that qu other systems such necumination of bosinices as worked off at comparatively a shore rate, and frequently worked off at comparatively a shore rate, and frequently hours make unique belows the fires as cleared, hours make unique belows the fires as a frequently that its practicability is mainly owing to the application of the firest firest than the process of the firest f The business automotion of transmitted can be from to it of Mr. STEARNS condenser, THE I

We have also believed, on scientific principles.

ders it practicable with the same number of employee lingly record its successes in THE TELEGRAPHER. If, to execute a much larger amount of business, at a Mr. Ouvox states in his report, which we print t week, it solves the problem of chenp yet remuneral It is, however, with its bearing upon the interests of rates for telegraphic service, we shall not be slow

could be unployed for in ordinary times. Our corress design to injure The Transquaren, by bolstering up

December 19, 1874.1

otherwise than favorable thereto.

nonsensical sheet in opposition to it. We have been assured that we were wrong in our premises, and regret that any injustice was done Mr. Prestorr, with whom our personal relations have always been and continue to be triendly,

In conclusion, we would say that we should very much regret to believe that THE TELEGRAPHER had a policy not in " consonance with the interests of the rust majority of the operators." While we do not believe that any telegraphic system can be permanently shelved because it will reduce the compensative cost of telegraphic labor, whether The Transmarines shall recognize and advocate it or not, we are equally confident that the general introduction of the automatic system, for the reasons before stated, will not be inimical to the interests of the telegraphic employes. Having no premiury interest in any telegraph company or system, we are in a position to maintain the independency of The Telagraphics, and shall endeavor, in all seige 2 tific and practical telegraphic matters, to deat fair? and equitably. The real interests of the telegraphs and equitably. The real interests of the telegraphe are our interests as well, and certainly it is not in tended that any policy which we may adopt shall i

Boyle's Cable Alphabet

LOCALISING FAULTS ON TELEGRAPH LINES.

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has it much are been builty comped in moving their various doors and the sumbter various doors are the sumbter of which are the sum of the sum various departments from 145 Broadway to the new building creeted by the company, on the corner of Broadway and Dey street. Most of the executive offices and other departments, except the receiving, operating and delivery, were moved last week and on Sunday of this week. The operating and other departments referred to were moved Monday night last, and on Tuesday the business of the company was transferred to the new building entirely, and 145 Breadway, which has so long been the principal telegraphic centre for the telegraph business of the country, was left solitary and desulate, probably never more to be

occupied for a similar purpose. The new building is get in a very incomplete stateeven the portious eccupied for the company's business being not entirely finished, and things are not yet in a proper condition to give our renders a detailed depeription of the new quarters and arrangements.

The officers of the company have very little to say in regard to the position of affairs, but are firm in the ever, it is legally wrested from them. They claim that the bargain with the great professor of duplicity and quadruplicity was complete, and that he had received

tic of him. The Daily Official of last Teachy publishes the following account of an interview with President Onrox, which, while it was rather amusing and evidently somewhat builling to the gortleman in search of in formation, yet is sufficiently definite as to the position of the company in regard to duplex and quadru-

plex inventions. On Saturday a gentleman called upon him (Mr. Octon) at his office in the old Liberty street building. He was polite, but looked nervous and us if pressed

with business.
"I want to learn," was the request, "the principle and operation of the duplex and quadruplex tolegraph "No," was the reply, "it is not especially a secret, but I could not explain them to you at present. I haven't the time. They are difficult matters to ex-

Won't you explain to me, then, in what relation "Week, you explain to me, then, m wast removes your company studies to these inventions?"

"If you will take a pencil," said Mr. Orton, specifing slowly, "and write, I will dictate all I have to say to you upon that pear in a single sentence."

The practi wast immediately preduced, and on the listide of a tors envelope the following words were written as the 45 from his tree.

written as the converge to not be light; written as they fell from his light; and the fell from his light; and the company claims to own all patents its used or to be issued upon applications now pending for duplex and quadruplex telegraphy; "Will you tell new what the unture of the point in "Will you tell new what the unture of the point in

dispute is p^r.

Mr. Ottoo put on his bot. He cast a cassal giance out of the window, and then turning and fitting his year on his questioner, sain ¹¹ you should own a syre on his questioner, sain ¹¹ you want of and a disputition may not atterwards, if you wan of such a disputition may not sain a surprise of the dust you see that there might assurably arise a dispute about title ¹⁷

As Mr. Orion concluded he bowed slightly and

As Mr. Orpon concluded he bowed eligibity and unwell-overside a civit's basic near the door, where he be unwell-overside a civit's have been the door, where he because the states raises caustic spapes for information and the states and the states are presented as the states and the states are presented as the states are unashines. Mr. Orten squared to withdraw them saw mandalane. Mr. Orten squared to withdraw the saw mandalane, Mr. Orten squared to withdraw or and the same than the same of any or other present to whom it could not be same than the same of the same

Further efforts to obtain information from this source seemed likely to meet with no better success, and the visitor (politely) withdraw.

The Atlantic and Pacific Telegraph Company are using the automatic system to advantage, and it is fully vindleating its value where there is a large amount of business to be transmitted, and the number

[February 6, 1875.

and Boston, and has proved a great assistance in keeping up the business when a portion of the wires were disabled. In working the automatic in connection with the Morse system a great advantage has been developed in the employment of skilled Morse operaturn as punchers, the operators receiving by sound and punching the strips for repetition without the necossity of their being first copied. This is, we are informed, regularly done in the Atlantic and Pacific office here when messages are to be repeated. Automatic apparatus is seen to be placed on the main routes of the Atlantic and Pacific Company west, as well as south and east. As suggested last week, the automatic will probably obviate the necessity of introducing the quadruplex into practical use on the lines of the Atlantic and Pacific Company. At the same time it is not contemplated to make use of the automatic exclusively, but to combine that and the Morse

system in the business of the company. We are also informed that on Sunday last a print, determination to hold on to the quadruplex until, if ing automatic arrangement was successfully operated between this city and Philadelphin-that is to say, the messages were printed in roman letters on the rotelying slip. This required four wires, but the managers a considerable sum of money on account, and that it of the company are hoping that by further improvewas not at his option to shake off his obligations to monts it may be found practicable, upon apover two them in the free and cary style which is characteristic. Unless this can be effected, while the experimout is a very beautiful one, it- is not likely to prove

very advantageous in actual service. The excitement consequent upon the changes which took the public by surprise two or three weeks ago in has subsided, and all parties are setting down to earnest work, to prepare for carrying on the telegraphic

contast effectively. We believe that there is room and a demand for two strong telegraph companies and systems in this comtry, that, properly conducted, these may both be suscressful, and that the interests of both the public and telegraph employés will certainly be advanced by such

Triese A New Brand of Office Wire. last week with what we venture to predict is a riddle that will "stump the crowd." He wants to know ; how to work a polarized relay with "one cell of battery and a continuous coil of short office wire! No doubt the "teeming brain" of the "great genius" would be able to accomplish this, if he could only find "a continuous coil of short office wire," but as the children used to say, "that's just where the catch

> Tel "Under which King, Bezonian!" Fol & 1875" THE telegraph sheet, whose only publication office

is the post-office box of the Western Union Telegraph Company in this city, and whose publishers and nouninul editors are comployed of that company, is certainly smeniclenaly kind and liberal in its treatment of the enmostion." Can it be nossible that the remors of wavering allegiance on their part are correctly based on reported "negotiations," and that they are preparing to follow, at the opportune moment the great prefessor of duplicity and quadruplicity in his transfer to the onesny's came ?

It certainly looks suspicious, and we would advise the executive officers of the Western Union Company to ascertain whether more of its enumies may not be found among those whom they have festered, and who are yet its paid adherents.

Lelegraphe A Happy Relief. Fel 6 1875 ONE of the impriest effects of the transfer of the professor of duplicity and quadruplicity from the West ern Union to the opposition side, is the relief afforded to the Editor of the Western Union official orana from the necessity of writing pulls and complimentary notices of that individual, and his supposititious inventions, against his conscience, knowledge and belief. He seems much happier since this relief was afforded, and life affords a better prospect of comfort and enjoyment to him. We congratulate him on the happy relief. TO THE REPORT OF THE PARTY OF T

> "Bere's a Heap o' Trouble on de Ole Man's Telestables Mind." Fel 6 1875 ONE of the small fry telegraphic lournals has been in the limbit of worrying the intellects of its readersthat is of such few of them as have any-with divers electrical conundrams, emanating from "the teeming brain and untiring nerve" of the "great genius" whose organ, or rather whose accordent, the said sheet is popularly supposed to be. But, alas! when this "celebrated inventor" mysteriously disappeared with the "crowning triumph" of his illustrious career, to wit, the "quad," in one of his cont tall pockets, he likewise carried off the answers to all the puzzles! And there isn't, probably, another party in the whole world except the " great senius." that can solve them. We give it up! It is very sad.

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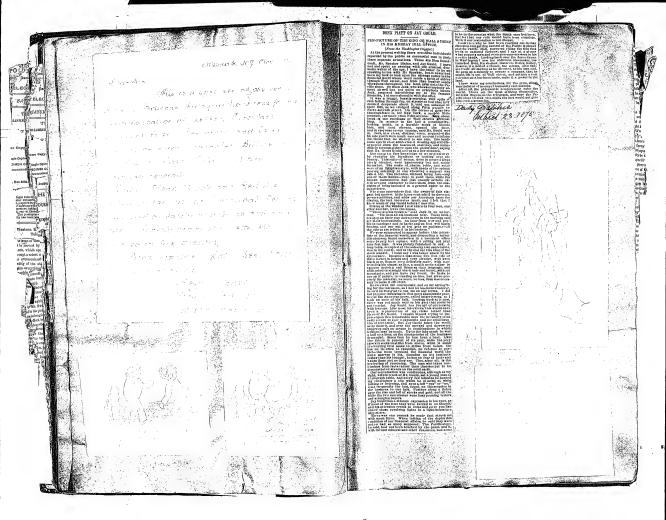
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Newark Comen ; anie

A OUADRUPLEX TELEGRAPH. April 16 1876 the Western Union-Mr. Thomas A. Edison's Contra-Alleged Attenut to Rob Him of the Fruit of his Toll.

In Ward street, near the Market street depot, is a large brack building, so quiet in its out-ward appearance that the casual observer night navally conclude that it was a factory has been for some time been closed on account o hard times. The front doors are all kept locked and the glass is painted over so that the public would not know what was going on within, were there not, in front of the second story, the words ithere not, in front of the second story, the worst
"Edisor & Murroy, Tolgraph Instrument
Makers." Yet in this quiet building there has
been at work, for a few years past, a power that
is now revolutionizing the mode of telegraphic
communication in the whole world. The levencommunication in the whole world. The laven-tion is the Quadruplex Telegraph; the taventor, Thomas A. Edison, a Newark genius, with little education, who has developed this great improve-ment out of his own cunning brain, with some

assistance from experts in telegraphic science.
The old story of the inventor being robbed of
the fruits of his toll is attempted to be repeated in this case. The adversary of Mr. Edison is the Western Union Company, who claim to have a contract with the inventor for the use of his inatrument. The story is one of great interest, epecially among those in this city who have known of Mr. Russon's struggles to bring his in-vention to perfection. The question as to the real exceessilp of Mr. Edison's patent is now before the Secretary of the Interfer at Washing ton, awaiting his docision, the case having been argued yesterday. General Butler, Leonard Myers of Philadelphia, and J. H. B. Latrobe of Baltimore, appeared in favor of Edison's claim, and Roscoe Conkilor and J. Hubby Ashton in

The Western Holen Company cisim their right to the patent on the following grounds : 'It is stated in their behalf that Mr. Edison, having no capital with which to make his instruments and test them by actual experiments, and not receiving much encouragement from the Automatic Co-went to Orton, President of the Western Union Company, and laid his plans before him and told him what he thought could be accomplished. He was encouraged by Mr. Orton, who told him that if his theory proved correct and it could be practically demonstrated, that four currents could be simultaneously sent through one wire and utilized in telegraphy, it would be an invention which would unquestionably be worth a a large sum of money. The Western Union Company was willing to furnish the means to carry on these investigations and experiments, and their principal electrician, Mr. Prescott' would be detailed to assist. His scientific ac-quirements, together with his great experience, would be of great assistance, as Mr. Edison the experiments were made under the joint directions and superintendence of Edison and Prescott, and after nearly two years spent in modifying, developing, and experimenting with the machine, the problem was solved. Then Edison came to New York and said to Orton, "We are ready to talk business." They accordingly discussed various propositions of sale. Edison thought that an arrangement to pay the inventors, Prescott and bisself, a roy. alty would be the fairest way in which to dispose of it, but Mr. Orion and Mr. Prescott though differently. They explained that it would be exthe return each instrument would make during a year; therefore, they suggested that a certain sum, \$25,000, should be paid down to Edison, and \$10,000 annually for, it is stated, twenty years. This proposition was necepted by Edison, and the napers were drawn up in accordance with this agreement, but before they were algorithed with this agreement, but before they were algorithed the Orion and finally accepted, it is alleged that be in the west to Harrington and told blist what he had done. Harrington claimed at once that Edison had not kept faith with the Automatic Company and himself, 'He assured him that he could make more money out of the Auto matic than the Western Union would give him.

It is turible alloged, in behalf of this Western Union Company? that Relson britanis means "became contineed that with the all of Jay Gould on Wall street," Ben Butler, and divers

toom on was street, but house, and diver-other Congressmen at Washington, and the New York "Quplic" and "Tribute," the Western Union would be sent higher than Gilroy's kite," and that with this idea in his hand he accepted a and that with that sick in his ness to accepted a proposition from Harrington, cutered into an agreement, and filed an application with the Commissioner of Patents for lotters patent for commissioner of Patents for lotters patent for his quadruple instrument in the name of Harring-ton and himself. A few days after this was done be notified Mr. Orion that the trade with the Western Union was off, and that he wished to

withdraw his proposition.

The king of the great Western Union monopoly saw in this movement a magnificent prize allipping from his grasp, and he resolved to head off the poor Newark invention if possible. Outck as a flash he notified Edison that his Quick as a flash he notified Edition that his propesition had been accepted and the papers signed, and forwarded duplicate copies of them to him. Mr. Prescot was dispatched to Wash-ington instanter, and an injunction against the lawse of the points to Harrington and Edisku was procured. His patition scatting forth his laterest

procurts. Its persons sorting forth an interest in the invention was filed with the Commissioner, and then the fight bogan in carness.

The claim of Harrington to an interest in the invention is chiefly based on a prior arrangement in regard to the automatic and deplex instru-ments, and it is contended that the duplex is the basis of the quadruplex, and that instance as he was interested in the former, he has therefore was interested in the formor, in one therefore an equitable interest in the improved instrument. The sase was exhaustively argued before the Commissioner of Fatents, who decided that the latters patent ought to issue to Edleon & Freedy, which meant a victory for the Westarm Union. This decision was grounded on the fact that the condranter was an invention of itself. made subsequently to Harrington's arrangement with Edison, which was confined to the duplex Instrument alone. From this decision Harrington and Edison appealed to the Secretary, whose decision is now juyated with interest by both portice, as millions here involved in it. Shalls Edison sheeced, in will be an immunely rith.

man. Certain parties in Washington have attempted to spread false reports concerning the decision of Secretary Delane, in order to affect the price of stocks. It is probable that the case will be of stocks. It is probable that the case will be apposable from the Scoresary's desiston to the Courts where it will remaile, probably for two years, unless a compromise is effected. It is two mored that Eduson has sold out his entire interest in the putent to Jay Gould.

The Western Union relations in the first place.

that the aersices of Mr. S. M. Clark, formerly of the U. S. Treasury Department, and a gesius in mechanics, were required to bring out Mr. Edi-son's first automatic machino, that without his, Clark's, services it would have been practically mentare.

scoess. This morning a Countrin reporter called upon Mr. Edison, at his residence corner of South Or-ange avenue and Boston street, and obtained from blue a general statement in reference to his inventions. Mr. Edison says that the amount offered to him by the Western Union Company was \$55,000 cash and \$475,000, payable at different periods during the life of the pairate o Before the offer was uccepted cortain legal ques-tions arese as to whether Edison could give a perfect title to the Western Union Company, as Mr. Harrington, President of the Automatic Telograph Company claimed the Quadruplex system was a "fast" system and was covered by a contract by which Edison conveyed the Automatic system to him.

White the inventor was thus placed between two

fires, Mr. Jay Gould came forward and relieved blin financially of all auxiety as "to the future of the controversy."

Regarding the automatic system : Mr. Edison

Regarding the automatic system: Mr. Ellison take that solither Mr. Clark or any other person assisted in perfecting that invention. It does not comits of a simple machine, but of nanny, and is mostly dependant upon chemical and celetrical devices.

Regarding the Quadruplex, he says: It was not pricected under Western Undon amplices, two years are specific processes are specific to obtain a proper years are specific in obstaining permission.

from that Company to test it upon their lines, and it was not until Mr. Prescott, Electrician, and it was not until Mr. Prescott, Electricians, (in name only) of the Company was, assured that he was to be benefited financially that such permitted was to be benefited financially that such permitted was to be benefited financially that such permitted of assisting in the experiments, and probably does not, nor norre will clearly understand the principle of the apparatus.

QUADRUPLEX TELEGRAPHY.

THE REARING BEFORE THE SECRETARY OF THE REASURY A DECISION AGAINST THE WESTERN UNION.

[BUXCIAL DESPATCS TO THE DAILY GRAPHIC.] BITSTIAL DESPATES TO THE BOARD IN the Case of Wassissiron, April 16, - 100 stones, and an intermeson, marrington, and present, and an most-regling of claimants for right to the invention of the quadrupler instrument for telegraphing come up before the Scoretary of the Interior yesterday up before the Secretary of the Interior yesterday on appeal from the Commissioner of Patents, who desided that the the the third the patents of the Patents

Harriegted's datas cated have cated have to self-or the Commissioner of Patonts Control of the Patonts Control of the Control

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In continue the originates history, the defined in the content of routh. He was answered by General Butler, who claime?

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The bearing began at twelve to clock, and lasted The bearing bran at "welve brobeck," and hasted till twenty mitrates part air. It was devoted co-ting to the question of jurisdiction. Excess was some very pointed to be been about and Section 10 S character and their convincing tendency. The secretary finally decided against Scanfor Conking that he had jurisdiction, and gave them two weeks in which to automit printed briefs on the merits of

Grather afil 16

The Direct Cable.

PICIAL STATEMENT OF THE FAHADAT'S WORK Mr. L. Oliphant, superintendent of the Direct United States Cable Company, sends us the fol-lowing from the London World, which he says contains the facts relating to the increm-

"contains the facts return to the movement of the steemer Paraday, now engaged in the field completion of the company's cables?" The Faraday wend cut is April to complete the laying of the cable. Hetarted semewhat too caty, now what the even transmitted between New York and the office in London at a speed of about the property of th rd, to run out thrity-live mines of cable is to effect the final splice to the America ballow water. There is no reasonable of refore, that the cable of the company w in for public traffic in a few weeks."

Atlantic & Pacific Telegraph Co. FRANKLIN DIVISION.

TERMS AND CONDITIONS. The rules of that Company require that all messages received for massemission shall be written on the message blanks of the company, under and subject to the carditions printed thereon.

W. H. OUIOH, Vice-Prest. E. D. L. SWEET, Exce. Manager.

Heave call on nine

Butter fifth wor Hotel

tomorrow Saturday

money & Say Gon do bo

TREATMENT CLEECK—Moves, Rétriès and Son, of l'plintargh, leve just mistant a crite et digital entime regulation. Allows, Rétriès and Son, of l'plintargh, leve just mistant a crite et digital entime regulation chatting establishments, and which hat been affendy described in the plantar of the control of th





A New Electric Light.

Officers the Galaxed Great efforts have for years been made to improve the electric light, the airvantages of this method of obtaining intense illumination having been extraordinarily increased by the improve-ments introduced into magneto-electric machines by Gramma and others. The cest has been so much reduced that under some dirounstances th electric light costs only one-third as much as coal gas. But certain difficulties, such as imported regulators for maintaining an arc of constant length, and the minuteness of the source of the light rays, have hitherto stood in the way of the frequent use of this light. According to a report made to the Academy of Sciences at St recognetion on of this light. According to a few processing of the contraction of the con

THE Automatic are to open an office in Newark. DAVID BROOKS has made a new departure in insu-

THE exhibit of telegraphic apparatus at the American Institute Fair in this city is very meagne this THE display of telegraphic and philosophical ap-

puratus at the Pair of the Franklin Institute in Pinlalelphia is very complete. Mn. Edison, by request of the managers, has sent

on his electromotograph for exhibition. D. H. Chain, the well-known telegraphic "dead best," is out again with a two column article of gush in the Daily Graphic about duplex, quadruplex and fast telegraphy. The editors of that journal say in a foot note that they will be very reluctant in inserting any more of that kind of raving in their journal.



LOCAL MATTERS. The Latest Newark Invention. The latest freak of Newark inventive nius is no less interesting than useful. It

is firm known by the title of the "Auto-graphic Press," and consists of an electric pen, battery and roller press, the functions of this curious combination being to facilitate the duplication, triplication and, if necessary, the multiplication of letter; trade and commercial documents and pictures. The "electrie pen" is the mort ingenious part of the instrument. Imagine a short tube of brass tapering to a point and surmounted by an electric engine somewhat bigger than a spool of thread. Through the tube runs a long needle, the point of which, when extended needle, the point of which, when extended for action, protrudes about the fitteth pri-of an inch beyond the tapering extremity of the brass tube, or pen-holder. The little en-gine atop of the holder consists of a double magnet which alternately attracts and ropels the poles of a small eccentric whee', producing a rapid revolution and causing the point of the needle, the upper end of which is attached to the countrie, to protrude from and rotire into the end of the holder with grest rapidity. 'Attached to the engine by a wi-e thread is manual holds considering the batter, by which the electric cogine is propelied. The whole apparatus looks very much like an ordinary yellow pen-holder with its bat on and a string around its neek, The modus operand is to place the point of the pre upon an ordinary sheet of paper, adjust the battery and write whatever you wish the electric pen being ascasily handled as any other. The characters, however, will not be traced in black, but by dotted lines, the rapid motion of the needle puncturing the paper as the point of the pen is moved to and fro. It is very much like holding what the Danbury News Man calls the "business end" of a wasp on a sheet of paper and letting the juscet sting small holes into the shee while you move him back and forward. The punctured sheet is then used as a mould for the manufacture of an indefinite

The persistence short at term field that it can field that can be common of earlier a Varia short is the last sear it maint a sufficient search of the control insuand and the control insuand a sufficient search of common search of common search of common search of common search of the control insuand control insuand and the control insuand a sufficient search of the control insuand and the control insuand a sufficient search of the control insuand and the control insuand a sufficient search of the control insuand and the control insuand an the out settle armer is always in the process of the control of th The manufacture

Jane Byre at the Opera He

moment. The manufacture is that they will seen be produced site, and will cost about \$1.2 for The wittery contains sufficient on, you can day, and each recease can DALLY ADVERTIMER

ARRICE OF

THE DOMESTIC TELEGRAPH Co., No. 12 VESEY STREET,

God'l To T. FOREST, Pres't. ALEXAŞDER MORTEN, Act'g Sec'y & Treav'r.

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New York, 8705 13 # 187 S

The Domestic Telepath Company desires to inform in starting a competition with which it has had scorlind in starting a competition with the anserican Signific Telegraph Company, at reduced rates; and the unforsion difficulties, incidental to the practical development of a new system and the incompetency and impact fulness of the late Superintendent of the Company, have, at length been mainly surmounted

the messenger service is being thoroughly organized, and placed in a more efficient condition. New boxes, smaller in sife of more perfect workman = - Ship and throughly whiable, will be gradually To Effect these substituted for those now in use. changes, time is necessary; and, meanwhile, your; forbearance is asked , should any inefficiency of service occur.

with a view to your cooperation in the efforts of the Company, you are specially requested under no circumstances to give the boys money for carface as they are always provided with cash for such after this notice, cartares, when incurred, purposes. will be charged to Subveribers, in cases where a monthly age is kept; and any such money paid to the boy's will be at their order risk and Expense. In cases where cash is haid a messenger for Service please endowe the fact, and amount of such payment on the back of the ticket.

a Report to the undersigned of any incivility or attempt of the measurer-trops to evade the forgoing rightations, will greatly assist on Efforts. Very respectfull allow morten.

JAY GOULD .



THIRTY-NINE years ago last June, the serenity of the of authinent. During the time that this interesting opera-much manusurering he obtained possession of half a million tion was going on, Mr. Gould subsisted meekly and patient-dollars worth of stock, which he induced an old friend by ly, on the top of the stairs, on sandwiches, and cold brandy the name of Bash to try to float on the market. There is and water, and suffered the usual indignities at the hands an old adage that good wine needs no bush, but it some of the monthly nurse. The child thrived, despite its undergoing the usual tortures in being duly smothered into who suffered from the transaction thought that there was a suffocation, patted into fits, and syruped into coma. When good deal of beating, not to say dead-beating, about this Mr. Gould considered the time had about approached for Bush,

wha his funre career would be. Having been presented with a Noch's Ark, he sold the ark and its contents, with curred through his chancing to run against a gentleman of the exception of two animals, to a youthful playmate. The

wo that he retained were a bull and a bear, and it is thought Hotel, Jay Gould was unable to keep o that the time he passed in contemplating them, greatly con- road, and was speedily driven from his di duced to the attainment of his present thorough knowledge life possesses none of the personal po of the habits of these animals—a branch of natural history tacked to his partner, and has always be n which Darwin, Huxley and Owen are confessedly his stern and somewhat morose individual. inferiors. Master Jay's education at the village school was umph of these associated financiers, was the not a happy period for him, as he displayed a singular in ble Black Friday, when they contrived to r aptitude for learning anything but arithmetic. In this, honest men-a class for which it was not however, he was facile princeps, and it was noticed that he have felt any sympathy-and plunge into spent many of his spare hours in working upon his state pair thousands of helpless women and chi ums of compound interest, the quotients of which always doubtless reaped his reward; at any rate 1

reached millions. One transaction of his school life is de. of a dog, but whether a better or worse fate serving of special mention, as it proved the germ of his the survivor has yet to be revealed. But he future policy. A game in which buttons of brass formed it may, there will be few to regret him the prize, was at that time very popular. Jay, favored by Of late years Jay Gould's speculation fortune and a penny with two heads, succeeded in slowly quite as colossal as formerly, but he still oc but surely gaining all his school mates' buttons. From every tinguishes himself by getting up pools and t ouse in the village brass buttons mysteriously disappeared. friends, and on one occasion he even caught h There was only one store that dealt in these articles, and to the time of eight hundred shares North Wee-lay bent all his youthful energies to the endeavor to obtain delightful schemes he is greatly aided by possession of its stock. A small errand boy was engaged policy of which he can guide as he pleases, and there, who was at last induced to purioin his master's but. ful instance having never occurred, than threat tons, and risk them on some games with Jay. The result that journal a few days ago aided his scheme upo was inevitable—Jay got control of all the buttons in the Mail stock. But then, few persons are likely be iliage. There was not a man in the place who could keep by any depth of infamy to which that paperalli up his pants, and as there were no railways, and a supply stoop. Its present editor, the pompous pagecould not be obtained from the nearest large town for at two years managed to nearly destroy the well of least a week, Master Jay held the village in the hollow of life, and with all the pettiness of his mean to his hand. Cautiously, and by slow degrees, he began to hesitated to print in its columns statements man unload, and got rid of all his buttons without getting into a himself, which described in inflated language

saved in the button business, purchased an interest in a factor of his race, and the man who did mu granite quarry, where he acquired that hardness of heart science, literature and still develop the reson and rigidity of grasp that have distinguished all his subse- It is also within his power to leave beh ent operations. It was here that he learned to chisel, that will command general execution for All his later chizzles have been cold steals. Like another be known to future generations as the n truly good man," whom fortune and a well-organized sys. sake of personal greed and lust of ge tem of bribery and corruption have raised to a prominent paralyzed the industries of a country of position among us. Jay Gould was at one time engaged in inhabitants, and precipitated it frequently State of Vermont was disturbed by an event which threw it the leather business. He was a denizen of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and who never encountries of the dismal commercial crises, and the dismal criteria. into a state of ferment, and shook its green hills to their swamp, and has ever since been Dred-ed. While in this the painter or the playright. In a word, a very centres. It was an epoch of mystery. Portentous lugulatious spot he engaged in certain speculations, one of have sacrificed the world, may, even his signs had been seen in the heavens. Hald Mountain had which was to induce an old gentleman to indorse his paper paltry, mean ambition. The latter is been finer than usually active, and had been interviewed to the extent of a quarter of a million dollars. About three Gould has chosen. We would not change by many special correspondents. At this time, when the months afterwards the said old gentleman cut his throat, for ten times the sam he is reputed to be we news of the death of General Washington was about to There is, of course, no connection whatever between these have been the benefactor of his country, I penetrate into the State, and there was some prospect of a two incidents. His next commercial venture was matri- curse. retungstion of specie payments, Mrs. Gentid, the weathy mony. Like all his others, it was not unprofitable, especiation of special pumpkin ple-man, took to her hed cially as the honds of matrimony were U. S. 7 per cents. and stayed there. The result of this annual proceeding on the The lady's charms were reckoned by hundreds of thousands. part of that good woman, was the introduction into this world Shortly after his marriage he entered into another contract, of wor of about nine and three-quarter pounds of mottled, namely, to build the Van Rensselaer & Saratoga Railroad. libby firsh, which immediately set up a "call" for a stock. He made the road and the road made him, as by dint of

the naming of the child, he issued invitations to all his Jay Gould's success in this little affair brought him to the Griends and neighbors to be present at the interesting ceremotic of another Vermont genius—the late Col. James The state of the s attlening more than Je-je-je-je-je. After he had con- regiment of National Guards. It is to this day matter of timed this for about a quarter of an hour, the pastor concluded that it was useless to walt onest, me passor come and the cluded that it was useless to walt any longer, and, as the lafint was unable to give any further information, concluded believer in the efficacy of cold water that he even watered labels were the construction of the const to name him Jay. This bird-like appellation proved felicitos, fiche turned out a raven in blackness, a magpie this practice, that when compelled by his own strict sense la his appropriating propensities, and a bird of ill ones of lessor and a desire to avoid a criminal suit, he made restitution of the little sum of nine millions. The loss of At an early age, Master Jay began to give indications of this capital did not seriously impair his fortune

better be conducted the paper than did pour,Gre His sphere of operation, however, in this Vermont village man whose favor and friendship raised him to to oon became too confined for his wonderful energy and rity out of which his own abilities would no alents. He absolutely yearned to spread himself. With him to emerge.

his view, he determined to go to New York; but feeling In a new country like this it is hat some preparation was necessary before his unsophis. possessing the undoubted ability that Jay ticated innocence would be ready to cope with the wily accomplish much either for good or examinations of metropolitan schemers, he, with what he had his power to make himself known for all its

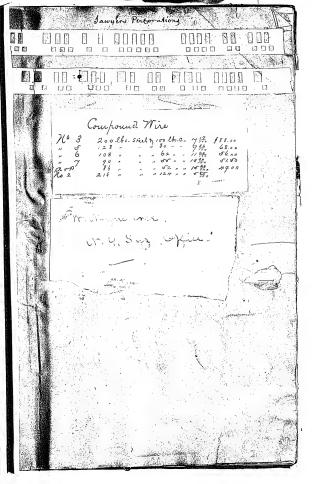


Western U. der Teltme talanza of the auto, which and

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phenomena. The contradiction is the more striking

Therefore of the Alexen Discrepance of the Section Animal Mechanism: A Treatise on Terrestrial and Aërial Locomotion. By E. J. Marey. D. Appleton & Co., New The Puddleford Papers; or, The Humors of the H. H. Riley. With Original Illustrations. Bo & Shepard. New York: Lee, Shepard & D. Locomotion. York, 1874. Locations, by 1., 5 alloy. In experiment of the property of th



WONDERFUL INVENTION. MONNING MIGH Thomas A. Edison's Startling Discovery. NOV - Power in Electricity

on han long obtained among the more salvament students of science that there existed other and more obscure forces than, light, heat, electricity and magnetism. For years poveral of the greatest scientific minds have been ougaged in efforts to dis-

cover these forces.
Sometime since Relicementach, the great
German Chemist, believed that he had discovdred that thought was a force a force of the will. This he meand Olic to Later Crocks, the English Chemist, Editor of the Otimical News, and discoverer of a device whereby light was made to more matter and perform light was used to more matter, and perform work, in conjunction; with Varley, the electrician of the Allantic cable, investigated the so-called spirit mani-ferations by means of sitestific apparatus, festations by means of estentials apparatus, with the bops of discovering a new force to account for the supposed, mantfestation. They were partially uncessful in that efforts and named the supposed force Divisi force. Mr. Thomas A. Edicon, of this city, the wellknown electrician, has been engaged for some time in an effort to solve the phenomenon of the dissipation of the electric and magnetic energy which takes place in the use of an ordinary electrical instrument. Most electricians believed that it passed off in the form of best. Mr. Edison is now confident that he has solved the mystery, and in so doing, that he has discovered a new and more powerful force than electricity or magnetism. He is now satisfied that the electric force which is allowed to pass off without performing work in the magnet of the electric colla ing work in the magnet of the electric colli-ce to integrably intrinuents in didly use, under certain condition, pusses of in the form of mother force, giving registre up, if form and interest the condition of the con-trol maintains there is the condition of the force maintains there is the condition of president kind of light, which were in-mitted over unmastered principles of foodnated length, the one front trace or foodnated length, the one front trace or the gas mades and plogic "this present the gas mades and plogic "this present Them experiments made "this present the con-trol of the control of the con-trol of th

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Telegrat the the sur

ply of any electric magnet placed in a circuit with an interrupting telegraphic key, and galvanto battery, and a piece of metalic cadmiam brought sayshing within the infir ence of the megnet. If the calmium be connected by means of wire with any other metalic substance, the gas pipes in a building, a railroad track, or to the end of a telegraph pole, sparks may be drawn off from the other end. This fact has been sitested by an experiment upon 75 miles of wire, namely, from this city to New Brunswick from there to New York and back amin to Newark. The force producing these sparks seems to be of an entirely different nature from either of the two agents which produce electricity and magnetism. The earth has no influence at all woon it The earth has no influence at all upon it, and glass and, about reluctance "stitution" of non-conductantific, departurity, any good conductors of this progression, and an advantage with it have been stituted by the most delicate policy and the properties, and all popular progressions of the presence of delicated, without this have been considered to the presence of delicated, without this has not make the presence of delicated, without this has not make the presence of delicated, without this has not make the presence of delicated, when the presence of delicated, which is the presence of delicated and the tricity, thus proging that it is neither indis-tive electricity, either of low or high tension or static electricity from frictional machines

Edison is satisfied that he can, by means o

this new force, transmit messages across the Atlantic, through an ordinary uninsulated telegraph wire submerged in the orean.

The generator of this force consists sim-

nement for poin the indications of antiquible of an arrowents will be discov-if whiteby in may be transmitted into me and made to perform mechanical work

This discovery has been examined within its past few days by several well known selenther and electricians, and the Chief Examiner of and electricians, and the Ghlef Examiner of their Autor Office, and all are attributed in the infension of the most important discoveries of the key. Mr. Editon is busily-ampgind in attribute the nature of the new force, and he will in a few days apply for a parint, both for the discovery and the use of this same.

PANY HEAD TO STREET, AND THE S

Of the active stocks Western Union Telegraph showed Of the active free has Western Union Telegraph showed, these subchrosses in resisting a fall than aginest any other on the last, and in that it is somewhill femerable, made and into it is somewhill femerable, since the contract contracts from femerable classifier for the latent femerable of the subchross any other of the tancies. We we remark the form for place of the contract of the subchrosses in the subchrosses of the subchrosses of the subchrosses of the subchrosses in the subchrossifier from any have to exceeding the subchrosses of the subchrossifier from any house to exceeding market some dyn seen, in assesses in the want their is a best of the seen of t

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On Monthly without T. A. Balloon, the Newmerk-theatethnic, continued list argentenants to ensactions with the continued and the second of the continued to the conti THE ALLEGED NEW DISCOVERY IN ELECTRICITY

LOCAL MATTERS.

MOV 19 "Etheric" Power
surrosen piecoveny of A NEW FORCE.
A discovery has just been made by Mr. T.

A discovery mag just need mane by Mr. T. A. Edison, of this city, the electrician and in-ventor, which promises to throw some new light upon the nature of electricity, if not to manifest the existence of a hitherto unknown natural force. During the night of Novem ber 22d, while Mr. Edison and his assistant,

matural force. Let Jaliene and his autistical, NC Claim. Institute of the state of the control o

to franchista a triber della Medicalista. The externation is the first mesters are two lost of different missis in favorite et al. 1972 to effect of different missis in favorite et al. 1972 to effect of different missis in favorite et al. 1972 to effect of the first missis and the effect of the effect current to the Zelous that possibly this spark mit is the manufactation of zones unknown force as in the manufactation of zones unknown force as in the manufactation of the certainty. According to the control of the certainty is detected and was surprised to find that the testing instruments gave unjoint to find that the testing instruments gave unjoint cation of the selection presence. A sheaker going the certain of the selection presence, a sheaker going that the certain of the selection presence is an admirty present the certain of the certain conditions it affects that the certain certain conditions in the certain conditions in the certain c torin to a new an unimet tore, Ar. Passession in named the new principle, "etheric force."

This discovery was immediately put to test by various experiments and the following results ob-tained: That the new force is non-point, radia-

ting in straight lines like heat; that it is capable of transmission to indefinite distances through an uninsulated wire; that it is not affected by the ordinary non-conductors of electricity, as glass, &c., and that it is retronctive, the spark being obtainable when the wire is turned back so as to touch itself. Mr. Edison is of the opinion that can be made to manifest itself otherwise than in the spark, and that it may be derived from heat independently of electricity. In script to put it to a severa test he connected a write from his labratory with the ordinary tal-graph wire and by permission of the Telegraph Company wire and by permission of the Telegraph Compan-was enabled to make a circuit extending from Ne-Vock to New Humanick, both cods terminating in his labratory. After pansing through this great extent of wire, the electric current was directed, the consimum wire gatached, and a surface. wolved as readily as though the circuit had been het a yard in length.
The practical value of this discovery consists

its manifestation of the possibility of sending me-sages over uninfinisted wires or cables. Insteld of couploying poles and gloss insulators, it seems to be necessary only to make an attachment to the to to increasing only to make an attachment to the realizond tracker to a write laid in the earth, and the mossage can be as resultly transmitted as it the present process. The expressive insulated cables now used for ocean telegraphy can be li-vated by eathlies of much cheeper construction, and in other ways the present cumbrous appli-mation of the control of the control of the con-trol of the arolled.

Trebus Nos IN ELECTRICITY.

responsible our own occupies The Tribune on Electricity. Tribune of this morning says edi-

The Tribune of this interving says ceits. Can nother page on accious it a given of which the page of t Ingure our cities would quies;
The "account on another page" les reprint,
column, except perhaps twenty words of circsing, of our report of Mr. E-lison's recont observations on "otherse force," nublished vesterday. It was a good report and fresh nows, and the Tribune manifests a true color ticism in adopting it as its own

World ELECTRICITY

The County of th

Newall Edison's Discovery

Though Mr. Edison's latest discovery is but eight days old, it is attracting extraordinary attention. Reporters, expert electricians and "scientific gents" of various professions, assemble to watch the nightly experiments with the newly recognized force, and inqui-ries are received from a multitude of sources ries are received from a miditude of solvers respecting its nature and discovery. Like an rother important discoveres the oldest thing about it is that it has gone so long unknown, about it in that it has gone so long unknown. Its manifestations have been observed a thousand times, but until now, nobody has been so inquasitive as to pursue there is the and times, but until jown, nobody has been of inquisitive as to pursua them to their source and secretain their nature. Every school-boy know, or ought to know the inches of the continuity voltate the continuity of the continuit every railway statem as the country. When the hyd is its toolshap place and a "decid" "statu-bay is in the college place and a "decid" "statu-bay is in the college of the country of the fill college of the college of the college of the fill college of the college of the college of the through the use in a continuous corne and that the majore is being incide place, or magnetical, the majore is being incide place, and the college of the law law college of the college of the college of the majore is the college of the college of the college of the majore of the clerkfully wide has been accura-minated in that it is dissipated. In the college of the majore the college of the college of the college of the pages the college of the college of the college of the pages the college of the college of the college of the pages the college of the college of the college of the pages the college of the college of the college of the pages the college of the college of the college of the pages of the college of the college of the college of the page of the college of the college of the college of the college of the through the college of the college of the college of the college of the through the college of the college of the college of the college of the through the college of the college

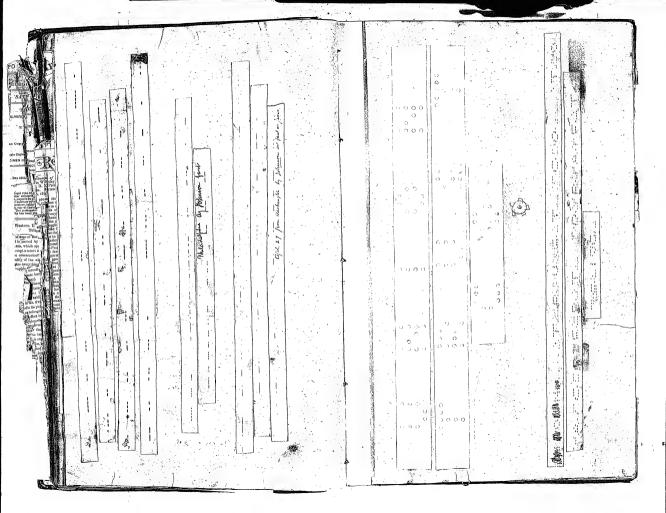
current,
Just here comes in Mr. Edison's discovery. He happened to notice that a piece of wire accidentally brought into centact with the magnetic cell pre-duced a brilling spark when touched with a me-tallo substance. This manifestation he had fretalic substance. This manifestation he had frequently observed before, and it would not have attended further attention except for the peculiar appearance of the little fish of light. Trying various metals Mr. Dillour found that condminus for various metals Mr. Dillour found that condminus for various metals Mr. Dillour found that condminus for various metals Mr. Dillour found that there was a practical value to forcestly, and that there was a practical value to forcestly, and that there was a practical value to

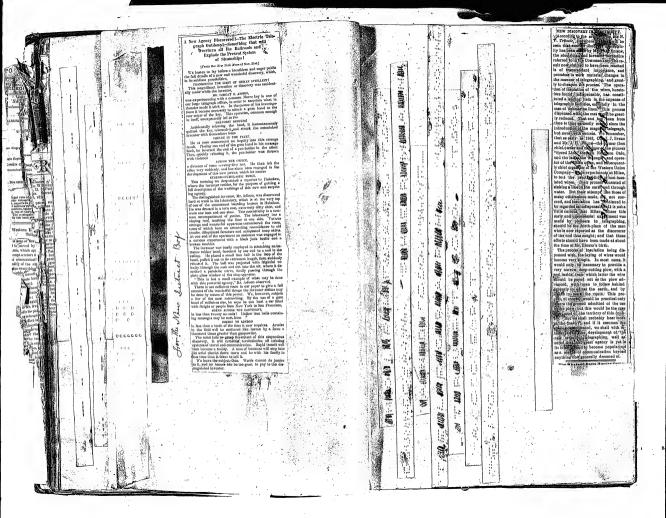
As a proof of the difference constitutions a great recitable revenient to the optimizant serve continued and study with results which confirm the relative to the confirm the relative to the confirm the relative to the confirmation of the confirma

hash of light.' Soldently it is not electricity, and if not what is its anature?
The discoverer is constructed an apparatus by which the equation can be precisized under the giaze-which the equation can be precisized under the giaze-of a microscope of 60,000 disasseter power. By this anatyle spectroscope he will be enabled to study the nature of the estutilistics more closely. The littery and instrument will then be instalted by decimel equits percha robe suspended from the celling and by various devices the nature of the celling and by various devices the nature of the otheric nower will be investigated. IMr. Edison is olso cudeavaring to, derive the new force from a simple magnet without electric aid, and hopes eventually to produce it simply by means of licat.

On another page an ageomat is given of related appears to be a vigor remarkable discovery in electrical satisfacts of the property in clerical satisfacts of the property in control of the property in the page of the page o by contact with platinum that the strongest nitrie acid fails to attack it. A genuine dis-govery of the sort would be of inestimable

service in cheapening the telegraph, called rates would soon be permanently reduced, and the 'unsightly' poles that now disfigure our title was a called a c would quickly disappear.







TWO THOUSAND WORDS PER MIN-

The Automatic Telegraph System—A Explanation of this Wonderful Invention.

Inc Retween Oracles and Chi

The Line Between Omaha and Chical Opened Last Night.

The Office in the Herald Bull.

The office of the Atlantic and September of the blazement of Tur Heran

stegraph in the bosement of Tau Harthotoning was also evaluate the control of the step and to enhance the control of the control of the of the control of the control of the control of the of the control of the control of the control of the thermone antients the control of the control of the theorem and the control of the control of the theorem and the control of the control of the theorem and the control of the control of the part the control of the control of the control of the part the control of the control of the control of the part the control of the control of the control of the part the control of the control of the control of the part the control of the control of the control of the part the control of the control of the control of the part the control of the control of the control of the part the control of the control of the control of the part the control of the part the control of the control

The sutomatic telegraph is really one of the greatest inventions of this most productive century, and we realize the importance of explaining it to HERALD renders. To the eye of one not an operator, or not aving a special knowledge of telegraphy, the office where the new system is in use is in appearance much the same as other telegraph offices. It differs from them principally (in appearance) by the presence of a reel on which is wound t.ar-row stripes of damped paper that can be rolled on off the wheel by use of a crank at a very rapid rate. The handle to the reel is right in front of a studious looking gentleman who is scated at the instrument and who is (with all the other thelegraph ers in the room) intently listening to the ticking of a Morse instrument at his side. CHICAGO CAN EKAD IT.

Everything land been made ready for the first test beween Omalia and Chicago, The chemically prepared paper has been wound on the little reel, the operator in Chiengo has been told to be ready, he ticks back something satisfactory and Mr. Sweet commences to turn the reel at him. It is very slow; only about two hundred words a minute; moderately the wheel goes round and round the electric current sounds in the dead silence, (everybody is holding his breath in suspense) like the wind whistling round an empty building, only that it is a stendy blow. The wheel stops; the message has gone forward. Hush—the little Mone instrument in front of Mr. Sweet is in motion. It is Chicago talking back and he says "I can read every word of it."

would be still.

Another message was recled of to Chicago at a much faster rate than the first and with perfect success.

and with percess musers and the second relations when the Machine wonderful apparatus? A man in Omnia reals off a strip of paper that contains two thousand growing he can do it in skty seconds if he pleaser, and another man sits in thicage and reads with case the

lvided, the same as copy for printers, for many had sight may be necessary to

Company of the second of the second with the second within the sec

THE NYSTOR

Is THOMBA A. Edition of Novatis, N. J.

Ito has breught it out, in the last three or

Gour year. It lies a practical operator and

is all has a practical operator and
other patects, all his un-twentions,
among them is the celebrated quaduplex,
tetrgraph by which four measures can be
not almost account. He is quite a young
for system. He is quite a young
tof. American parentage.

The Union Peticle and the Atlantia and Pacific telegraph companies have bought the right to use the automatic system from its investor and it will be extended along the U. P. and O. P. road 1. Valifornia. The California papers can receive their press deepatches, nearly as much as the Hirnato publisher, in a few minutes. It means to say that Mr. L. M. Richem is the manager of the local office in the Hira-Ato buildings.

Ato building.

At a later bour we saw Mr. Korty witha reci in lab land around which was wound
n long continenous strip of paper. He said:
it was from Chicago and had just been recivited at the rate of all hundred words a
minute. Along the centre of the strip
was a row of dots and disalses drawn;
distinctly as if by a steel pun dipped in
blue lak.

TOO LATE FOR CLASSIFICATION.

LITTLE LITTLE

TWO THOUSAND WORDS BER MIN

Opened La

The Automatic Telegra cago at a usuch faster rate Explanation of

with perfect success. ax Inves HOW THE MACHINE WORKS Was there ever a more wonderful appar-. * The Line Between

The office of the state of the sent is placed before the operator and he perican parentage. o get the new system phays on his machine as he would on a plano. The preparator is arranged with keys, each key representing a letter. After this prepared in that way the paper is the automatic system from the prepared in that way the paper is the conditional control and it will be extended along the paper. plays on his machine as he would on a I remain several day erato, of the compar ey, superstendent of the U. P. telegraph liv taken to the table that is provided with a watching the moveme crank and the crank works a little roller ratus with intelligent by stram.

THE THANSMITTING PEN. The prepared paper is drawn across the reel by means of this crank. The reel is marked by a transmitting pen which has a small roller attached to its end and which makes a contact through the holes in the makes a contact through the notes in the paper with the rec's below, and by that means elesses the circuit and transmits the characters just at they are, perforated on the paper. That is the explanation of the

RECEIVING MESSAGES. Before a message is transmitted the operator who is to receive it is told by the old Morse system when to be ready. When everything is roady the operator prepares a reel of paper that has been saturated in a chemical preparation so that a touch dis-

Reporter-Is that a secret?

Mr. Korty-No, but the process is patented. When they are both really the receiving overator and the transmitting perator tu. the crank at the same time t about the same spred. As the transmitting operator turns the crank running the perferated paper through the machine the receiving operator at the other end of the line starts his paper by turning a similar crank which starts a reel in motion on which rests an ordinary needle. This chemical paper is run over the reel, the needle pressing on it as it is run through, Every time that the transmitting accedie at the transmitting station makes a contact through the perforated holan electric current passes through the mile, through the damp chemically preppaper on the receiving reel. The cur as it passes through the paper has the effect of coloring it, giving it a bluish tint, and every character transmitted is thus record-ed on the receiving paper.

PREPARING AND COPTING. It requires work to prepare the paper but it can be done at the rate of from 75 to 100 words per minute. There is a machine for that. Then after dispatches have been received they have to be copied. If the lines were busy all the time it would re-quire quite a number of operators to keep work up, but the paper can be et

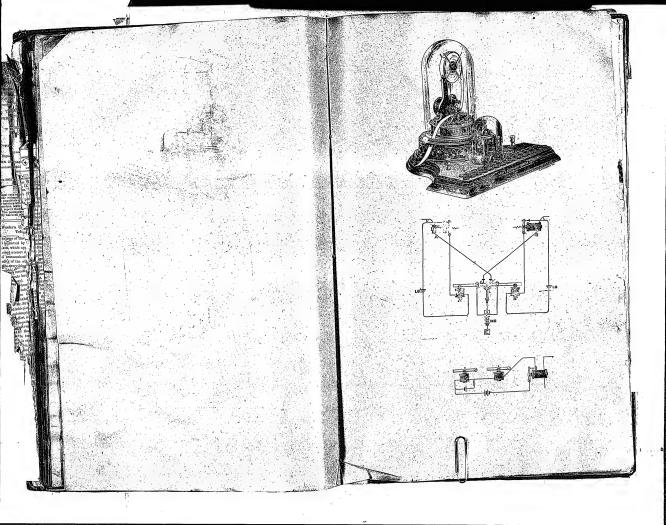
ivided, the same as copy for printers, for silt may be necessary to

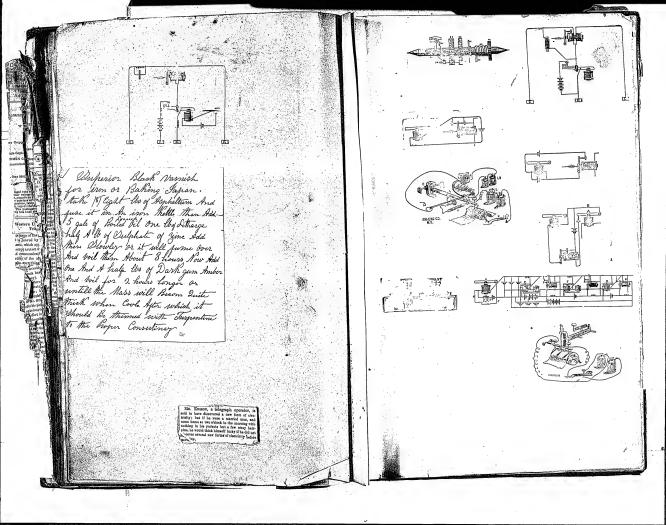
med. A speed of over two nd words per minute has attained on the castern lines Was there ever a more wonderful appear-atus? A man in Omaha reels off a strip where it is doing great and successful attar A man in Omnås rede off a stip brings i knobe great med noccialle av to struck, bre no år lå brings i ver bresser i The distratings of this system ofter struck, bre no år lå brings om stip til tilstegen om er redis with east to verde start knobe er redis with east to verde start knobe bren stimed off from tue redis from tilstegen om er redis verde start strucket av hab been stilnett observer og to tilst inter-jerten, med os a much institued en virtel hab been stilnett observer og to tilst inter-pieren, med os a much institued en virtel start klinde Redis (heigens), be capabile virte by Allerken. Zildenstite ut to de til klinde Redis (heigens), be capabile virtel y Allerken. Zildenstite ut tols-

P. and C. P. road to California California papera can receive their lescatches, nearly as much as the p publishes, in a few minutes. I to say that Mr. L. M. Rhoem is Sanger of the local office in the HER-

ilater hour we saw Mr. Korty with his hand around which was wound pontionous strip of paper. He said rom Chicago and had just been re-Along the centre of the strip row of dots and dashes drawn as if by a steel pen dipped in

TOO LATE FOR CLASSIFICATION

LITTLE'S A PUBLIC answer is called for from any one of the course effects (if any exist in the uses only of the Automate reterrable thousand, to the colorate question the party of the course of the Automate Celebratic Company of the Chirological Celebratic Ce A Published any across in the assession of an operator conversation and any across in the following a processor matter two persons to the following and the City




Scientific American. December 25, 1875.

Several years ago, it was accidentally discovered that, tric generator, will produce a spark. Electricity is present when the contact of an electric current which magnetized a when the contact of an electric very near one of the poles while at the same time the two polarities are continually and mrgo electro-magnet was broken very near one of the poles of the electro-magnet, the spark was so much increased in intensity as to produce a powerful snap, like that of a small platel; while the breaking of the contact at a distance from pistol; winto the breaking of the comments as a distance from the cessits of such charge, as in an excussooph, or to cause the electromagnet produced by no means such officet. The like a point current and manifest its results, as with a galrent thing observed was the drawing of sparks from the yearnester. It is undoubtedly a manifestation of electricity. these phonomena led any investigator to search out their origin, or to try to find what further results of the same class neutral electricity.

inventions relating to electric telegraphy. He investigated the nature of the spark which could be obtained from the Iron core of the electro-unguet, which, according to his are to core of the electro-magnes, which, according to his properties of electricity. The galvanometer is unmoved, the delicate gold leaf electrometer exhibits no signs of de-flection, a Loyden jar is not charged by it, etc. But we consider the conclusion that this manifestation shows the exis-

tence of a new force, to be rather leasty. ence of a new lorce, to no rather massy.

It is well known that static electricity, which will product meter, and that the cura shock, will not move the galvane rent of a large element of a voltake battery will neither move a cold leaf electrometer, charge a bayden jar, nor produce a shock. Therefore to say that the phenomena observed at test new "principles, until now buried in the depths of human ignorance," as some of the reporters of the daily paper

have done, is, to say the least, rather premature. We will here call attention to the fact that at present three principal forms of electricity are known, and they vary so much in their nature that formerly some investigators inslined to consider them as separate forces or fluids. First we have the sp-called static electricity, possessing great tension; it is developed on a small scale by friction, and on a large scale by evaporation and induction, as manifested in thunof metals, but water and the human body are good conduc tors, even the dry skin of the hands forming no obstacle-Secondly, we have the veltaic or galvanic electricity, originated by chemical action, and developed in our galvanic bar teries. For this form of electricity, only some metals are good conductors, others poorer, while water and the human body are bad conductors; its effects on the latter cannot be studied without wetting the skin, as the dry skin is a nonconductor of it. This form of electricity is used for telegraphy, while, as is well known, the static electricity (as obtsined by friction) is not to useful for this purpose, its great tension causing it to escape too easily. Thirdly, we have the therme-electricity, discovered in 1820, by Steleck in Berlin, which differs as much from the galvanic electricity as the latter does from static electricity. For this thermo electricity, water or the human loody is an absolute non-conductor, and a thin metallic wire is but a poor conductor; so that it can scarcely pass through the whole length of the coil of a common galvanometer, and does not act on this instrument, but is powerfully indicated by one made with very thick and abort wire, even if the galvanometer consists of one singlo, heavy, and uninsulated wire, in a coll of one turn or only half a turn,

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Now it appears to us that the form of electricity discov ored by Mr. Elison, may be:
1. A fourth kind of electricity, requiring as little or let

nsulation than the thermo-electricity of Seebeck. It is said to pass over the ordinary gas pipe, and can equally well be drawn from several of the chandellers in a house, or even in other houses, if one of them is connected with the source of the new electricity.

2. It may consist of a continually reverring current of indu

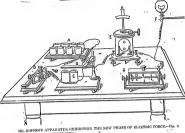
tive electricity of a form in quality between the static and calvanic kinds. This appears the more probable as its source is said to be a vibrating armsture, in which of course then are continuous interruptions, the induced currents formed by the interruptions running in an opposite direction from ose formed at the making of the contacts, as is well known by all electricians. Such continually reversing currents of ourse cannot act on the galvanometer, gold leaf electroscope, or Leyden jar, as their rapid reversion neutralizes all possible charge, the only manifestation being the sparks, of which, however, the rapidity of the succession causes as abundance, little affected by imperfection or even algebra

THE DISCOVERY OF ANOTHER FORM OF ELECTRICITY. At the same time, this would explain why one end of a in such abundance that branch currents are easily supplied so perfectly balanced as to exactly counteract one another so as to be unable to charge any conductor, or to manifes the results of such charge, as in an electroscope, or to estabren electro-magnet, or from its armature; but neither of and being neither positive nor negative, as is the case with all the forms of electricity thus far known, it might be called

couls no obtained.

This appears to have been done at last by Mr. Edinor, of Resum detections, and called by him weak spatis, laves [new likes, and called by him weak spatis, laves [new likes, and called by him weak spatis, laves [new likes]]. polarity, being either positive or negative; and although the method of Mr. Edison, they appear to be of a different nature, having a very different origin.

The most remarkable feature of this new form of electricity, which proves its perfect neutrality, is that it has no apparent effect on the human body, and none on oven that most delicate of all electric tests, the properly prepared frog's leg, unless an exceedingly strong galvanic current is used around the magnet.



Three and other experiments which we have had the pleasure of witnessing show conclusively that the new force is not amenable to the laws of voltale or static electricity. An experiment made with the apparatus figured in the large an experiment made with the apparatus or garden in sacrange agraving (Fig. 2) will satisfy any electrician that the force engraving (Fig. 2) will satisfy any electrician that the force in action is not induced electricity. All the parts are insu-lated except the gas fixture. A is the battery; B, a common telegraphic key; C. an electro-magnet; D. a bar of cadmium (or other metal, cadmium being the best) supported by an



saulated stand; E is a mirror galvanometer; F, the gas pip G, a dark box enclosing pencils with graphite points lead pencils). The unknown current passes from the bar of cadmium through the galvanometer, without causing the lightest deflection, and notwithstanding the gas pipe con-

nection, which would drain the wire of induced electricity if there were any-bright sparks are visible between the graphite points in response to the motion of the telegraphic

Standing on an insulated atool, the experimenters draw sparks from the following arrangement (Fig. 3), in which r is the end of the vibrator (which, as well as the battery, is insulated): A, a secondary battery; B, a 200 ohm cell or copper wire; C is a block of iron, and D, a condenser, all well insulated except A, which is of glass, and stands on the table. In another experiment a glass red, four feet long, with a piece of carbon fixed to one end, was well rabbed with a silk handkerchief over a hot stove, and the carbon point presented to the apparatus, the other end of the red being held in the to the apparatus, the other one of the rou being note in the hand with the handkerchieft sparks were drawn, yet the galvanometer chemical paper, the sense of shock in the tongue, and a delicate gold leaf electroscope were not in the least affected by the mysterious current.

Tested in whatever way the experimenters have been able

devise, the new current refuses to obey any of the established laws of electricity further than that it traverses metallic conductors, manifests itself as light, and can be controlled by making and breaking connection. Among its observed pe-cultarities may be noticed its lack of polarity, indifference to the carth (and consequently its capability of transmission through uninsulated wires), its power of producing action when turned back upon itself, its independence of electric non-conductors, and seeming lack of mechanical and physiclogical offect.

Mr. Edison has proposed the name "etheric force." Since the above was put in type, Mr. Edison has sent us a variety of additional particulars pertaining to his new and interesting discovery, which we shall give to our readers in our next number.



got all " got it! There's millions in it

THE NEW PHASE OF ELECTRIC FORCE. In our number for last week, we called attention to what us our number for issa week, we carried antennon to what we at first supposed to be a similarity between the prior ex-periments of Professor Reiss and those of Mr. Elison. A further examination of the Relss reports satisfies us that the results obtained by Mr. Edizon are novel, and have little or othing in common with those of Professor Reiss.

We have had an opportunity of closely examining the apparatus by which Mr. Edison and his assistants obtained the process of the supposed new kind of electricity which has letely elicited so much inquiry and speculation, and we procent herewith three diagrams of some of the apparatus used by Mr. Edison during his experiments.

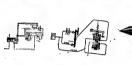
The first recognition of the distinctive character of the spark occurred on the evening of November 22. Mr. Edison and his assistants, as we have already stated, were experi menting with a vibrator magnet, consisting of a bar of Stubb's steel, fastened at one end and made to vibrate by means of a magnet, when they noticed a spark coming from

the core of the magnet. They had often noticed the same printers when there were iron filings between the armature and the core, and in the new electric pen, and had always supposed it to be due to industing electricity. On this occasion the spark was so bright that they suspected something more the spark was so bright that they suspected something more than induction. On testing the apparatus they found that, by touching any portion of the vibrator or magnet with a piece of metal, they got the spark. They then connected a wire to the end of the vibrating rod (the wire leading no where), and got a spark by touching the wire with a piece of iron. Still more remarkable, a spark was got on turning the wire back upon itself and touching any part of the wire with its free end. The end of the vibrating red was then onnected by means of the wire to a gas pipe overhead whereupon a spark could be drawn from any part of the gas pipes in the room, and subsequently it was found that the spark could be drawn from any part of the whole system of city gas pipes. The vibrator and battery were next placed



en insulated stands, and the wire, connected with x, Fig. 1 was carried over to the stove, about 20 feet distant. On rub bing the end of the wire against the stove, splendid sparks were observed. With the wire permanently connected with the stove, sparks could be drawn from any part of the stove the store, sparks could be arawn from any part of the same with a piece of metal held in the hand. Again, while the vibrator was in action, a block of fron was placed near ?, but not touching the bar, nor connected with it in any way except by the wood of the base through the table, and sparks could be drawn from the Iron.

MR_EDISONS (NEW FORD)



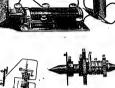




















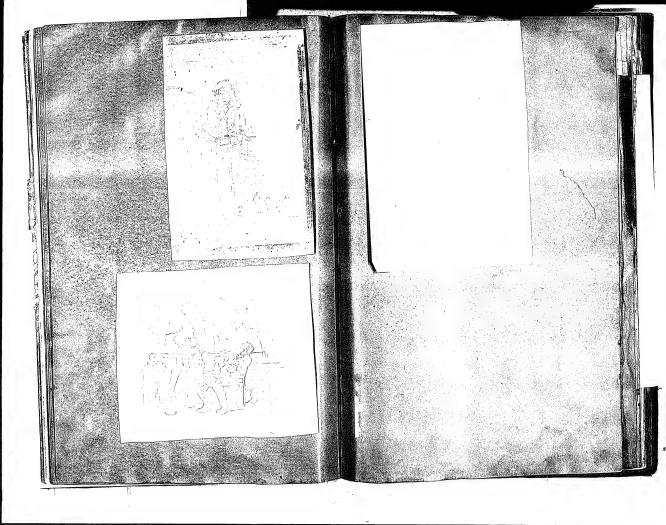


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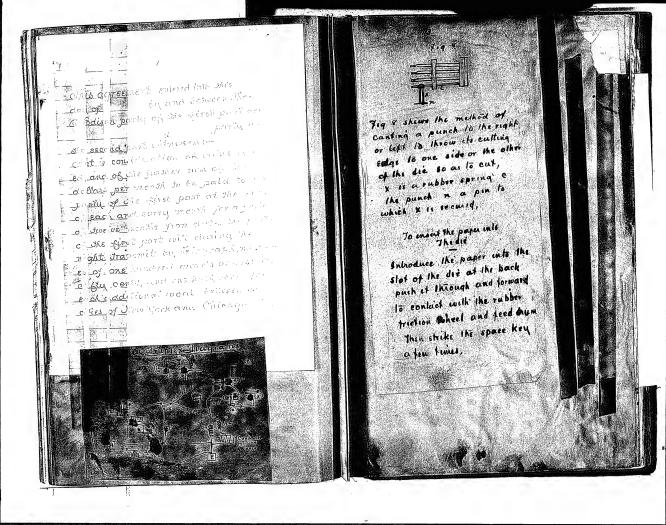
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so assumed that this force is return to the battery by the is leaves it, as the water in pur wherea, the is because it is seen, then will account for many if p this force only exposes when there is interceptions in the Carlot of the F10.2 CARTH 6 The self one here is so merely either in the end; where the self of the committee of the forces being minimal for the committee of the self-of the be designed as a power country of the country of th













There are the work 2 hour the timid asteroid. There are others whose deleht it is to discover now sources of the Wile and set others who nationally strive to capture the sky metals which bide themselves under chemical disguises, and to extoives uneer chomical magnises, and to ex-hibit them in tangible form, clothed with decent Latin names. The men who make these discoveries deserve the utmost praise for their ingenuity, learning, and patience, but their decis pule in importance before that of the man who discovers a new force. If there is anything which the public esthe electri pecially desires it is now forces. It is true that the public never had any clear idea of what a force really is, and now the now doctrino of the correlation of forces has made the matter more hopelessly oboperation sours than over. Still, there is a vague

more we can do.

coperal belief that a force is something which can accomplish something-unless,

indeed, it happens to be a distortive police

force-and there is no denying that the

calls the "atheric force"—though for that

por magnetism, although it accurs to be a sort of becond cousin of the one, and, let us

say, a sister-in-law of the other. It amear-

onthe resides in magnets that have been

that it is as much superior to the sort of

atter, he might as well call it the chloral-

567 An incenious person of telegraphic auto-

now con more forces we have at our command, the for the tru cedents has just informed the world that world has le science ind he has discovered a new force, which he shrorbold o that are ye step we take hydroto or the nitrons-exide force. This force, he assures us, is neither electricity the grand re

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which that

The practi

Mr. E electricity used by the ordinary telegraph as a compound stoam-engine is to a windmall. The new force has a curious foudness for gras-pines. If it is once brought into Connection with a gas-pipe, it will instantly make its way along the gas-main and its branches to the end of every gasburner, no matter how far distant. The discoverer thinks that the new force will make a revolution in the telegraphic business. Of course it willat least so far as this City is concerned: Who will care to send a meserge to a telegraph office when all trouble and expense can be saved by uncorking a bettle of the "otheric force," and employing it to start the message over the gas-pipes ? It is true the Amode that there will be certain features of this mothed of telegraphing which will be rather anneying. When we sit down to dinner we shall have a constant stream of messages trickling from the chandeller, and our bedto use, ni to-lim room gas-fixtures will whisper the secrets of the whole City into our unwilling cure as we value strive to sleep. The difficulty with the "etheric force" is that when it is once let plex system loose on a gua-pipe it loses all power of soldpetfaint, and unless the discoverer can deito some method of sending his gas-pine apssages directly to their destination, and nowhere else, there will be a perpetual and This fo

kide-lights that will be simply maddening. 'It has not yet been noticed that the "tetheric force" is evidently the sume as the "odie force" discovered long age by REIGHENMACH. That maligned and diseredited discoverer alleged that keen-sighted persons are able to perceive a luminous cloud, radiating from a magnet. To this cloud he gave the name of "Od," and with It he ; naserted that "cinirvoyants," adopted in "animal magnetism," and other dealers in apparently supernatural wonders, perform their fents. Unfortunately scientific men declined to believe in "Od." and the other to been collipsed by the more recent invention of spiritualism. But it is clear that the force which REIGHENBACH claimed to have found in the magnet has been rediscovered under the name of the "etheric force." There is now an opportunity for the levers of the mysterious to make the further of the mysterious to make the further claim; that 'the "etheric force" [14], identical with the "astral light" of that re-nowned magician Eliphis Lavi, and that

confused chatter from our chandeliers and

graphic instruments and circuit breakers. His he would at ouce have recognized the tree nature of his discovery, and justed of poticing over gas-pipes would have prempt-ly begun the manufacture of ghosts and established a direct telegraphic communica-tion with the other world. He has ignorantly and needlessly belitted his own achievement. He thinks he has merely discovered a new kind of electricity, and hopes to patent it and use it in sonding pressic messages. Whereas, if he has discovered anything it is the Od, he has discovered anything it is the Od, the astral light, the universal sol-vent, the trae philosopher's step. By its add he can accomplish floor wonders than PARACHISUS disamed of, or CAGLIOSTRO PARACHLEUS distanced of, or CAGLIOSTRO over pretended to work. This is indeed any age of progress when the end to which the Residence are of voted their lives is suddictly reached withheat effort by a tolegraph

ago:

THE "ETHERIC FORCE."

WHAT TELESCHENTIFIC AND UNSCIENTIFIC WORLD ARE BAYING ABOUT IT. DEC 2 THE - STHERM PULL STREET AND UNCLESTED OF THE THE THE STREET AND UNCLESTED OF THE THE STREET AND UNCLESTED OF THE THE STREET AND UNCLESTED OF THE STREET AND UNCLESS.

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NEW DISCOVERY IN ELECTRICITY. Experiments of T. A. Edison. - Possibility of Sending Measuges by Wires or Cubigs which are not Insulated.

angur by Wires or Cadigs unlich are not Jenutadi.

7. A. Dillion, of Neuruk, N.J., an electriciam and inventor, has been and a ulcovery, and there are not a construction and an analysis of the construction of the construction of the construction of the construction undersoon material of the construction of the construction undersoon material of the construction of

inglish of Nov. 72, within Mr. reduced, mind of membrane.

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WHOMEN — M. T. TORMA, No. 80.

THE ALESSEE TO SECURITY AND THE CONTRIBUTION OF THE CON THE ALLEGED NEW DISCOVERY IN SUBSTRICITY.

For the Action of the Control of the THE "ETHERIO FORCE."

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TELEGRAPHER DECA
Duplex and Quadruplex Telegraph Inventions of
Mr. Moses G. Farmer. 1845

The real house of the real to TO THE EDITOR OF THE TELEGRAPHER.

The injustice of the above, so far as I perionisty of concerned, it to glaring to be pussed by baseotierd, the facts in connection with my interest in duplex telegrant—re-so follows: I havgord, 1864, I road before—a so follows: I havgord, 1864, I road before—a so follows: I havgord, 1864, I road before—a so follows: I havgord, 1864, I road before—a solid telegrant of the solid contribution and the business of the solid contribution and the solid contribution of the solid contributi

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These may the first deplace actions in this country. The court of the part is control, to all the court of the part is courted to the court of the part is courted to the court of the part is courted to the courted of the part is courted to the part is courted to the part is country to the courted to the part is country to the courted of the part is country to the country desired for any other parts, the in-terest of the country desired for any other parts, the in-terest of the country desired for any other parts, the in-terest of the country desired for any other parts, the in-terest of the country desired for any other parts, the in-terest of the country desired for any other parts, the in-terest of the country desired for any other parts and the country of the

gned, Mosks G. P H. S. Termile Station. Newwort. H. L. Net. 20, 1975.

was, doubles, for this renow, thin he mail, in reference to Strains's proposition of 1856, that it "was unquestionably the corlicat published suggestion of what is now vest what means Paint and Emeson have bereiofore h sees on the quadruplex system."

may use furnise; printensed arguments of what is now the Ever into artifactory to show, yet two where the printense is the local factory to the printense and of it. In the first, that excell of the received qualitapide inver-tion in the printense are printense measured as the printense of the printense are printense measured as which is found to a many printense measured as the printense are printense measured as which is found to the printense are printense measured as the printense are printense as the printense a could not of itself constitute a legithrate invention Mr. FARMER's invention, patented in 1853, and release in 1875, does not claim the pole changing continuity preserving key as new yer so, but only "in combination with instruments for sorving and receiving messages simultainstruments for solving and receiving messages simultaneously upon one wire. When you are 1874, west the auno key, but in combeting in instruments for sending two messages for high school the pits of his invention. The application to this of one of the exist. ing duplex systems was an afterthought, and, according to Mr. Pores's view of the subject, was not a true invention when considered by itself. The question whether stell an englication door or door not embala or in fringe upon specific combinations previously invented or potented by others, is alterether a distinct one, the discussion of which did not necessarily, as it seems to us full within the stone of Mr. Pers's article. If it had in reality formed a part of Mr. Population to trace the development of what is now known as the duplex are torn the environment of want is now known as the carly labors of Mr. PARMER in this now fruitful, but then almost unknown floid of discovery, would have been simply unpurdenable. With this explanation we feel sure that Mr. FARMER will acquit the writer of the article, as well as ourselves, of any intentional injustice towards him, while our residers, being now in possession of all the facts, can

readily form their own conclusions in regard to the Another Great Discovery of the Professor Daplicity and Quadruplicity. "HERE we are neglet" is the familiar exchanation of

the clown as he tumbles head first into the circus ring Similarly Entsox, the great professor of duplicity and quadraplicity, once more astonishes the chiter of the New York Tribuse, and through the columns of that newspaper acquaints the world of duother great discovery, which is to "revolutioning the graphy" and cheapen telegraphic communication to such an extent that is will be cheaper to use the telegraph than the unit.

The professor is not certain as yet whether his discov-ery is of a new kind of electricity, which has hitherto been overlooked by dectricitus, or a bran new force, simiher to electricity but developed by it, and which possesses all the administration and mone of the disadvantages for utili-WE, publish in mouber column a communication from 1 all theorems and asson of the manurantings in trust-late. Rangem, in which he takes exception to our re-marks in Pacisin to Mr. Port's sattled on quadrupid of feet. The incidently of the great, professor is striking in tolography, published in Tun Transaurum of Novem-than difficulty distributing his testifity perception, but tongraphy, published in Tun Tamanarum of Novem; thus difficiently distributing his facility perception, since the P 13th. It was certainly very form our intention, it are not we think we may neithy say, then of 12th. Prov. publication of the province of the province of the publication on province. In fapor collected residence, which will not be character, or exceed the province of the province o

miention, menths the professor has been hard up, and have been paper of 1800, to which he resers in his communication, russians the processor has been more than here been but it contained no principle in common with the quad- confidently looking for some new development of his

of development which he was ondeavoring to trace. It our watching and waiting was not without remember

interest in the discovery has been sold or promised more than three or four parties as yet, so that the field open for all who have more money than wit to invest former Vies is burelon!

Grantic Dec Ha SCIENTIFIC SCEPTICISM.

The discovery in electricity by Mr. Edison may prove more important in its results than some ex-perts imagine. There is a natural distinction on the part of scientists to accept reported dis-coveries as true until after a rigid experimental verification Solenos is intensaly conservation Its scepticism is chronic. It has as frequently been mistaken in its rejections as in its beliefs. The confidence is chosed. It has an Proposation I as consolidation to have made in proportion between the large control of the consolidation of the consolid

and mysterious sources of the Nile. We see R. Instructed in the efforts making to learn what also illustrated in the efforts making to learn what on he known respecting the Arctic zone and the open nea that increased the pole. And, naturally recourt, the question comes up why similar pointed offerts should not be made in chemistry, likelegy, psychology, miscralegy, meterology, mid-astronomy. Last you never a capadition indiastronomy. Last year several expeditions of recents out to observe the framit of Vennar, and be results of the observations were awaited and neglect with great interest, and will be of, unfortunated utility becaster. Why abould not the yearing action to the combine table representation of the product of the observed of the observation of the observa The ways for the discovery of user facts and have in the various departments in which they are re-spectively engaged, and the second of the con-sequence of the control of the control of the con-cerning of the control of the control of the co-cerning of the control of the control of the co-terning of the control of the co-terning of the control of the control of the control of the co-terning of the control of the control of the control of the co-terning of the control of the control of the control of the co-terning of the control of the control of the control of the co-terning of the control
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original investigation, in consecuted with the Smithscolar Institution at Washington. The founding of a half dozen departments of 'original research in that institution would mark the beginning of a new era in the scientific develo



Duplex and Oundraplex Telegraphy, -Mr. Farmer's Inventions.

WE publish in mother column a communication fro by no oversight, platify equipment to to my one subfig the ly-spit, the professor freegonaming, it as has entrelimited to ment the notice forestion, or special, fat. Incide "spit, spit, temporally. In sois object was to trees the profition the time with which the colorated Paxes more was read development of the co-certific appearance within the read that prices are less than the contract of the co-certific appearance within the read that prices are less than the contract of the contr namer of 1855, to which he refers in his commit replox apparatus of to-day, and consequently did liet, genius which should sgnin immortalize his name and reoperly speaking, form the starting point in the chain pleatsh his exhausted exchequer, and it is evident that a

Diendorg/HERIO FORCE Further than the mysterio irrent discovered by Mr. St. A. Edison, electron of Newark, N. J., a full description of hith we publish on another page of this some. Unlike the now very fully understood, the not known as magnetic electricity, the cature of which is to ily off its conductors brought in contact with anything which is not a non-conductor, sad make its way into the ground, this newly observed current or pursues its course without interruption bree pursues its course without actions no will from outside attractions, and shows no will or tendency to effect a ledgment in the ground. Hence, it is thought, its use in teleground. Hence, it is thought, its use in tole-graphy will not require insulated wires or non-conductors. And, not requiring these, poles and all non-conducting materials or de-vices can be dispensed with. As regards vices can be unspenses with. As regards cease cables, if they are insulated, the force can be sent through the insulation material at the same time it is sent through the core or wire. More still, it is supposed that refired racks can be utilized as conductors. The tracks can be utilized as conductors. The discovery is yet in its infancy; that is, it is being tested, and all these suppositions are yet to be proved facts. If poles can be dis-posed with—if the conducting wire can be labl in the earth—that alone will effect a total revolution in the business of magnetic telegraphy. And if full and distinct eignals can be sent through the insulation as well as the core of a cable we will have reached, we may say, the end of all desires, in the matter of expense and service in connection with ocean magnetic telegraphy. Everybody will sincerely hope Mr. Edison's discovery will prove all that it promises.

STENCIL PLATES BY ELECTRO-MAINETIME. One of the nost ingenious and novel applications made of electro-

name of the state and make their marks on the paper under it. In this way 1,000 or more impressions, may be made from a single stencil-plate the second by the close

tro-magnetic pen.
The construction of this pen is the main feature of the invention, it carries in its top a small electro-magnet with a revolving bar, making some 1,000 or magnet with a revolving bar, making some 1,000 or more revolutions per missuic; the electromagnet is connected by means of flexible supper wires to two small cause of a cavious, determine—butters, while a current breaker on the axis of the revolving ber, interrupts the current twice at every revolution, in the axis also carries an eccentric, which gives an upward axis asso curries an eccentric, which gives an apound and downward motion to a bar passing through the body of the pen and projecting below with the small body of the pen and prejecting below with the small point mentioned, while this point makes the perforations by the power of the electromagnet in the top of the pen. We have no doubt but that this small machine pen. We have no doubt but that this amount satelline will find many other applications besides that of writwill not many other apparentions occurs that of writ-

THE RECENT ACTION OF THE TRUSTEES DISCUSSED AT DELMONICOS

electro-magnetic prenomenous and an accounted need was of more extended reverse in so-called molecular physics, and that to the accomplishmorecular physics, and that to the accomplish-ment of this end the requirement of scientific men was greater money means.

COLUMNIA COLLEGE, Dec. 2171515. To the Epiron of the Hennis; nec. 25 [16]

Alter,a few experiments on the so called ben'y discovered, "etterio force" it seems that this eas be saintertorily explained, since it is known that, on making and breaking a current, the cells of the spiral of the apool act inductively on each other and an invesse extra current is predeced. This current will give sourks, decompose water, industries sizel profies, &c.

THE ARCHIVES

ELECTROLOGY AND NEUROLOGY, A JOURNAL

ELECTRO-THERAPEUTICS AND NERVOUS DISEASES.

GEORGE M. BEARD, A.M., M.D.

THIS JOURNAL IS NOW THOROUGHLY AND PERBANENTLY ESTABLISHED.

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The second number of the first volume, for November, 1874, is none ready, with the following

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W. Munson, M.D., of Amity, Ct. IV. Cares of Hydrovule. Recovery under Electrolytic and Galvano-Caustle Treatment. By T. F. Frank, M.D., Titasville, Pa.

V. Municipal Law, and its Relations to the Constitution of Man. By R. S. Guernsoy, Counselorat-Law, New-York City. VI. The Influence of the Climate of Colorado on the Nerrous System

By Charles Denison, M.D., Denver, Col. VII. On the Treatment of Vomiting by Electricity, By Frederick D. Lonto, M.D., of Cold Spring. Member of the Council of the New-York Neuro-

logical Society. VIII. Description of a Portable Medical Battery devised by Prof. George W. Rains, M.D., of the Medical Department of the University of Georgia, IX. Galvanism in Ocaliar and Awai Affections. By W. W. Scoly, M.D.,

X. Chronic Alcoholism. By George M. Beard, M.D. XI. The Relations of the Nervous System to Discuses of the Skin. By L. Duneau Bulkley, A.M., M.D., New-York,

MISCELLANGOUS EDITORIAL NOTES:

The Date of Viviscotion-Camp-Life for the Nervous-Additions to the Cod-layer Oil Emulsion—Cold Powder—lokoform in Nervous Diseases—Hay Fever Regardors—"Mind Rending"—The Nervous System and Skin-Diseases—In —In Memoriam of Prof. Jeffrice Wyman and Dr. Anathy. THE PRINCETON ALUMNI

The action of Princeton Criteric has been been a Distribution and the second of the best common of the second of t The Alumni of Princeton College held a most

THE NEW FORCE

NY HERALD

THE new brand of observicity Intelly discovered by Mr. Russrox seems to be a very harmides one Indeed. It have absolving by the least, failing were to produce on mescalar contrastives in the most acrous system, and has notified polyving, seems or tasts. It is doubted, seen, whether it would distung a box of dynamitic if turned bloom among it.

PUZZLÍNG THE VVISE MEN. SUN DECEMBER 124 1479 THE ELECTRIC WHAT IS IT THEY HAVE FOUND IN NEWARK.

Nr. Edison's New Force Trated Last Even-ing - Winst the Savants May About Its Mysterious Proporties-Genflet of Opinion, At a meeting of the Newark Scientific

As a mostling of the Sylveric Scientific American in a mostling of the Sylveric Cases, a constraint in the Termini Cases, the prediction of what Sylveric Cases, the prediction of what Sylveric Cases, and that I have been supported by the second of the Sylveric Cases of the Sylveric Cas

NO "REPRESED PORCE" To the Editor of The Tribune.

Sitt Scening an account in This Tribuyate of the discovery of "otheris ferce," leads me to relate a similar experience. Last year is powerful electro magnets was built in the westendop of our belorstory. It was with no little disquart that you found currentee asks to make with it he experiments described by Dr. Beard, in 21st Thurun or 1Dec 6.1 "Two coils of whe surrounding

the fron core of the hangest proved to be improporty be related, and the current from the battery was communicated, to the fron once. The difficulty was entirely or more than the control of the front of the first the control of the

COPYING Law decourants of all kinds when a number of copies are required; copied by the obserted process quicker and chesper than lithographing or writing by hand. Accourage granaterd. Trade Circulters, Circulters, Circulters, Circulters, Circulter Letters, ed., prepared on shortest notice, orders received at the oliceof the Seronar Call.

BORRANIO AND WORLD OF SCIENCES. No. 549. Cer. 1, 1875.

In the tube, which, by discreting the current, had all serve in each the gas and sin.

And all serve in each the gas and sin.

And all serve in each the gas and sin.

And the serve in the house and since the single sincludes single single single single single single single single s HE BUNNEN BURNER.

[Original to Brauns harmon and the state of the sta

Experiments on the Proportion of Gas and Air Mixed Previous to Combustion in Air Mixed Previ TARRE L.

TABLE II. Pressure of Gas and Air 12ths of an Inch. 4. 95" ... 330" ... 831 c.f. ... 1272 c.f. 5. ... 190" ... 230" ... 898 ... 1070 ... 6. ... 190" ... 430" ... 590 ... 636 ...

The amount of gas necessary to be mixed The amount of gas necessary to be mixed with the gas previous to comberdien it shows in the above tables, which were much year to be a considerable and the state of the control of the co

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Mr. Wallace exhibited a furnace composed of

Good table. We have observed that as the pre-lightent and all morness. However, in all the control of the designation of all morness. However, in all the control of the sheet of the control of the con

(201). C. H., A. Angert. After ranking. Mr. Dill-son's experiments on how stateful from Y. Under Control that, by reducing the control of the Ground that, by reducing the press to against the Unceducing the control of the control of the Unceducing the street in the control of the control to the control of the control of the control of the Unceducing the street in the control of the control of the Unceducing the control of the control of the control of the long rankers, Lind disk, an consensing it with the control of the long rankers, Lind disk, an consensing it with the control of th

Mr. Edison's New Porce. To the Editor of the Scientific American:

I notice in your SUPPLEMENT No. 5 an article upon the "phenomenon of induction," by Professor Houston of Phila-delphia, copied from the Journal of the Franklin Institute, in which be claims that etheric force is nothing but inductive electricity, and that he observed the same phenomenoin 1871. He attributes my failure, to obtain indications with the test instruments used, to the fact that the positive and negative currents from the vibrator followed each other negative currents from the vibrator followed each other with great rapidity, and thus prevented the instruments from responding. In reply, allow me to state the gentleman is en-tirely wrong in his conclusions, and that he cannot be familiar with the extra currents of low resistance magnets; otherwise he would have known that, upon connecting the battery, the extra current is provided with a circuit in which it may pass, consisting of the battery, connecting wires, and electromagnet. Under the conditions by which I obtain etheric force, no spark about theoretically be obtained, even otheric force, no spark should the closing the circuit; and in all my experiments none has ever been obtained. Neither is the brilliancy of the spark reduced by replacing the iron one of the electromagnet (used in one form of experiment) with a copper one, which should be the case were the spark

In regard to the Professor's claim of priority, I have or every occasion stated that the spark has been observed by electricians for many years, and attributed by them to inductive electricity; and all that I can lay claim to is that per haps (if that is not due to electricity.

In conclusion, I suggest that, as I have freely laid myself In conclusion, I suggest that, as I have freely laid myent open to criticism by prenuming to believe in the expectly of Nature to supply a new form of energy, which presumption rests upon experiment, it is but fair that my critics should also back up their assertions by experiment, and give me an exual chance as a critic.

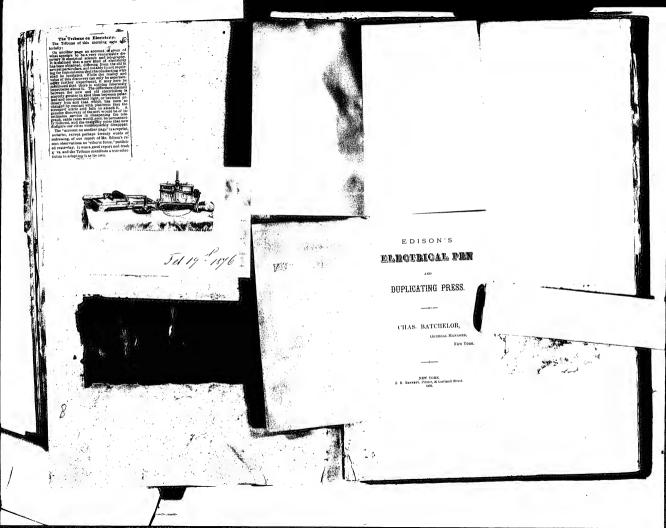
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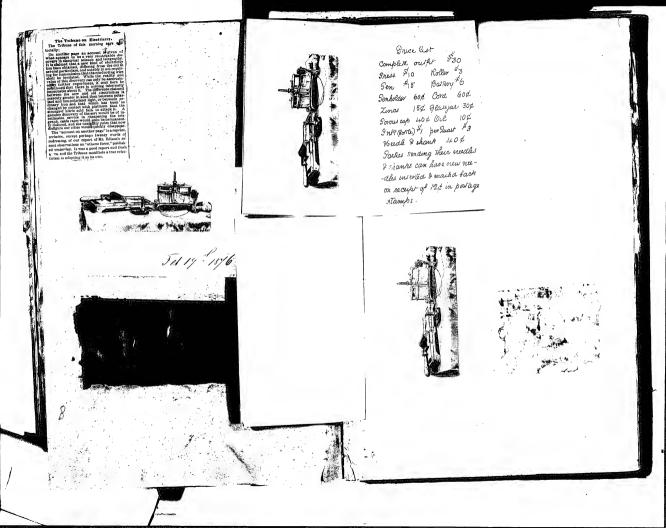
The Nature of the Phenomena Discovered by Mr.

To the Editor of the Scientific American: Allow me to correct a slight typographical error in the last paragraph of my article on page 89 of your current volume, where it said: "Another argument that this force is not elec-

tricity, itself, and is only related to electricity," etc. This makes me say the reverse of what I wished to convey. It should read: "Another argument that this force, if not electricity itself, is related to electricity only, and not to heat,

P. H. VANDER WEYDE, M.D. New York city.









DIRECTIONS.

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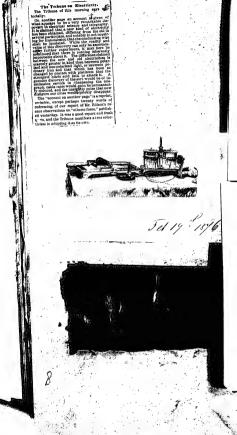
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The Electrical Pen

DUPLICATING PRESS

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This must be detached and
the nod insented in the balteny base. The glass joins
are then placed in the necesses of the base a o figl
the speciale-shaped glass
holder is then stipped on the
mad and secured to it in such
a position. That the glass join
stands to an inch aboue it.
The winter equipment polione to then placed in the glass
join, one with the flat side.

ink formed by the ordinary pen, will be a report of immorphic holes purctured in the paper by the rapid projection of the needle from the tule. The result is a perfect paper stened, which, traded precisely as an ordinary stened, will give a new to sult. The motive power used todays the car as of the pears derived from a velocic battery. It was to the energying. This battery consists of the losen cells, the principle of which we do our to be the celebrated chemist Bureau and for power and convenience has never local excelled. A part of st form of this battery was especially described by M . Edison for the electrical pen, with a view to conmy and its use by persons in sperion of in electric It is provided with a lifting at anothers. whereby the battery plates may be talsed fore, the exciting thirds when not in use, thus prevently great

sumption of materials.

The current from the battery is conveyed to the engine by two wires insulated from each other, and placed in a single flexible rord, thus giving a frecomment to the ten.

A neat stand for holding the pen when not us a carcompanies the appearants. After the street harbeen prepared, it is a very simple matter 1. Is also great number of perfect the similar of the original writing, resembling lithography in every partic-

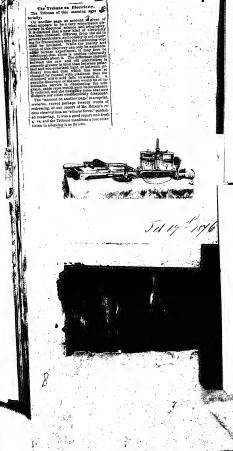
The press shown upon the left consists of a rotal base, with a perfectly smooth top, anon which the sheet to be prived upon is hid. A france; rath, upon hinges and having four shamples springs for securing the steard in position, is brought down

upon the bed of the press and secured by a clamping not. An inking roller formed of cloth, upon which is put ordinary printer's ink thinned with an oil and well distributed over its surface, by passing it over the hed of the distributing box, is passed back and forward over the steneil plate five or six times with the first impression, less with succeeding ones; the holes of the steneil become tilled with ink, and deposit it upon the paper underseath of the original writing without the possibility of an error, and presenting an appearance for superior to writing done with an ordinary pen. The printed sheet is then replaced by a blank one, and the same process gone through again, and so on until enough copies are obtained, or until the original paper is completely worn out, which will not be until from six to eight hundred have b on taken. If larger numbers are required several stencils may be pre-

and the singletty of the whole squartae, and the results definited by it, exitle it in a place amongst the really useful inventions of the sgc. Litheraphy cannot compute with it in the case, rapidity, and cheapenes with which a number of the sgc. And cheapenes with which a number of the sgc. And the sgc. and cheapenes with which a number of the sgc. and cheapenes with which a number of the sgc. and cheapenes with the side of the sgc. and the side of the sgc. and the parameter of the side of the sgc. and it was certain the sgc. and it may certain the sgc. and that a certain publicity is the recip given to their said that a certain publicity is the recip given to their sgc. and the sgc.

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enthany circular, price list, etc., can be written.

printed and mailed within one hour. As almost anything that can be done with an ordinary per may be done by the me of this apparatus, it follows that the press is adopted to the uses of nearby all trade. CHECULARS.

It is acknowledged among business mention as: autographic trade circular attracts mere attention, at d is far more effective than one printed with type The former, as obtained by this process, is been econ mical and by reason of the case and chapters. of preparing the original stencil, a great diversity of form and matter may be had. In fact a new circu Int may be issued every day or hour, and a change of phraseology effected at any moment without vipense. For instance, a person has a valuable article which he is desirous of introducing to the public through the medium of circulars, and has a large number printed in the ordinary manner die mast take a large number to obtain them cheap, and finds after a few days that he has left some in-pertant matter out, or that a change in wording will convey his meaning better, and mid to the effectiveness of the circular, he desires to change it; to do so be is and circular, no newtres to completely to use to be soldliged to throw aside his expensively produced matter, and duplicate it in an equally redicus and expensive manner, whereas by the use of the duplicating press, he can print his circulars as he wants them, and if any change in the wording or folia is desdred it can be done in a few moments without expener. For daily

PRICE LISTS

MARKET QUOTATIONS It is invaluable, as it allows the circular to be kept open until after business hours, and a few moments before the closing of the mail. For

CIRCULAR LETTERS, It has the advantage that it can be prepared by the principal of the house, thus endowing it with an air of authority and avoking the publicity of the printing office as previously mentioned.

PAMPHLETS.
Where the matter is not too great, are quickly and cheaply produced by this process. While for Accions, Book and Trada Sale.

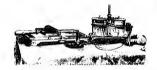
CATALOGUES, the printers cannot compete with it.

PRINTERS



The Tribune on Electricity. The Tribune of this morning says disfigure our cities would-quiekly disappear.
The 'account on another page' is sreprint, errorism, except perints twenty words of redressing, of our repeatings twenty words of redressing, of our repeating twenty words of redressing, of our repeating the control observations on 'actions forces,' published vesterings, it would report and first many and the Tribune manifests n true celebrations.

ticism in adopting it as its own.







Thek places of series a such lete counts the peneus cells and the clusts into the confer of mill be noticed, what the given it in gen on profes on our discove the of this way the direction, by the government to be a compared to the of or a course of the colline

LAWYERS BRIEFS. CONTRACTS AND

LEGAL DOCUMENTS

of every description can be expeditionally and occaomically produced. It is already hereby in a bly inwyers for that purpose. No mistakes can possibly oreur, as frequently happe us when the reduplication is done by copyret. It is the only practical nothed of preventing error in the duplication of

which has any degree of practicability. The New York Central R. R. have adopted it for this purpose with great satisfaction. The large presess general ly required for such work, owing to the large size of the forms used, are made to special order.

LABELS. LETTER AND BILLHEADS. ENVELOPES.

and innumerable varieties of small printing may be done according to the expertness of the writer, thereby effecting a great saving in printing bills.

MAPS

of various kinds where outlines are only recressity. or various aims where our measure only recreatly such as real estate major for showing situation of For its cent escare maps for snowing sciumes of 1-bs, etc., of almost any size, are easily produced in any number.

ARCHITECTURAL AND

MECHANICAL DRAWINGS

are produced with facility, and tracing from draw-inest sketches, designs, etc., previously prepared in ink, are made by merely passing the electrical penover the ink marks.

White it is not claimed that the line shading of lithographic engraving can be produced with the pen in the hands of an inexpert, it is claimed that pen at the names of an inexpect, it is exame a for all practical purposes it will produce sketches and pictures by outlines, which is all that will generally be found necessary. Elogant

BILLS OF FARE

may be produced by an expert proman and the use only be produced by an expect promot and the use of different colored inks, and by rapid writing with the pen are made to present an unique apprarance. By its aid the composer and arranger of music is enabled to duplicate

MUSIC

of the most complicated character, now so largely done by hand, owing to the cost of reproduction by other uncorrect INSURANCE FIRMS

having the agency for a number of companies frequently require a dozen copies of the same policy made out on the forms of the different companies. This may be done by a special press designed for the purpose, neatly and expeditionaly, resulting in the saving of the salary of a clerk to many firms.



The Tribune on Electricity. The Tribune of this morning says solver in the tree e nations insecution inproceeding to the and of all assertions in
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the angle of ticism in adopting it as its own.

12 For in-urance reports, notices to sub-agents from general agents, and the small private printing of the company generally, it is invaluable. For

CYPHER BOOKS. PRESS REPORTS.

Jel 19 11/6

FINANCIAL EXHIBITS. and every concessable variety of printing, it is obviand every concentuative variety or printing as a constraint only indipted, and the experience of each day brings to light some special work among the trades for which it is adapted and which were not previously water it is mispied and which were not previously thought of. For instance, it has been found that it may be made to replace the expensive and cambrons may be more to repose the expensive and emorous marking in chinery used for marking embroidery work upon cloth, and for the duplication of dress patterns, etc., a larger pen and press than the popular size being used for the purpose. For the EDUCATION

AMUSEMENT

of the youth it is without a parallel, in view of the variety of work a boy can perform upon it, and the small cost of the apparatus. School n, and the small rost of the apparatus, control children can copy true age, make maps, take copies of their drawings, essays, etc. The printing machine is limited to the type fours, this machine only to the skill and imagination of the boy. Rud-less amusement may be derived from it. Such boys or girls who may be apt at sketching, or at pactical or proce composition, can easily and quickly obtain

cureface houses of they are a served le grennain en cofrenciae pen is not in use, the governell soon waste away. To prevent this their should allowers be filled out after waining

at you dup a strip of paron in the need flood a from the Governing as follow participation of the and the feeling and read arms of the f The part with a comment of more than consider your day Derry nest of a mach

aumerous copies of their production for distribution among their fellows and friends. Like the Gun, Sewing Machine, etc., the parts of this apparatus are made by the modern methods, and the parts be-

INTERCHANGEABLE

can be supplied upon application, thus rendering it annecessary to send the whole of any of the spect fic machines composing the outfit long distances to be repaired. be repaired. DIRECTIONS.

Accompanying each press, is a hook of instruc-tions, in which a more complete description of the apparatus and the teached of printing is fully set forth, with instructions for making the battery fluid, reacting the battery, and what to do in case of accident. PRICE.

PRICE. The price of the press apparatus complete (fools on size) \$30. Sent tonsy part of United States and Canada, C. O. D. by express or on receipt of money order. Presses of any dimension, for special work, made to order.

INFORMATION as to prices, size of presses, or any other thing re-lating to them, may be obtained at the office of EDISON'S ELECTRICAL PEN AND DUPLI-CATING PRESS CO.

CHAS. BATCHELOR, Gen'l Manager, 41 Dey Street, N. Y. P. O. Box 3207. Address all communications to

CHAS. BATCHELOR, P. O. Box 3207, New York.



The Tribune on Electricity.

disfigure our cities wonbfquickly disappear.
The "second on another page" is a representation of the control of ticism in adopting it as its own.



11 WHAT THE PRESS SAY.

(Pr. in the Dudy Advertiser, Newark, N. J. THE LATEST NEWARK INVENTION.

The latest fresh of Senark Invention general scales on the senter than no full. The known by the infliend the Andready and content of a deciment of a deciment of a strength of the content of a content of the content of the degree of the content of the spool of the all Though the two terms of any noods, the field of the All products about the third paid of the attemp products about the third paid of the All products, when the All paid the form of the All paid the All paids of the All paids o etring around its neck.

The general organism is to place the point of the pen upon attending the tof paper, adjust the bettery, and arite what-ever you wish, the electric pen being as essely handled as any other. The characters, however, will not be travel in black, tent by dotted lines, the raper motion of the needs spaneturing the paper as the point of the pen is moved to and fro. It is very much like holding what the "Pandary News man" talks the "bindiness cast" of a warp in in sheet of paper and letting the insect string small fields into the sheet while you move him has a and forward. The pain fixed sheet is then used as a strend flow its rapinfacture of an abstract number of replica-A black sheet is taid formatic Pannin role remarated with link

enough to sun the pen, and should be nemewed. If the battery is not strong enough the pen will story dayin as soon as you begin to write. The water in the glass javes should be nenewed frequently and the "black powder" that collects on the gunes should be bounded off with a stiff brush

RED FLUID Procure a common jug of 12 gallens capacity. Pow into

In proceed over the cartier, the finite preceded mere and making a clear and cast Improved mere than the process of the cartier, the cast Improved on the ca

(From the Manufacturer and Bulbler.) STENCIL PLATES BY ELECTRO-MAGNETISM,

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The Tribune on Electricity.
Tribune of this morning says shall be lavablech. With only to assortiate the control of the con The "account on another page" is a repent, verteifin, except perhaps twenty words of redressing, of our report of Mr. Edison's recent observations on "etherre force," published yestersiay. It was a good report and fresh by we, and the Tribune manifests a true celection is a company of the property of ticism in adopting it as its own.

enough to nun the pen and should be nenewed. If the bottery is not strong enough the pen will stown down as soon as you begin to write. The water in the glass javes should be nenewed frequently and the "black powder" that collects on the gimes should he bushed off with a stiff bruich

RED FLUID

Procure a common jug of 12 gallens capacity. Pow into

WHAT THE PRESS SAY.

(Pr. in the Budy Advertisor, Newark, N. J. THE LATEST NEWARK INVENTION.

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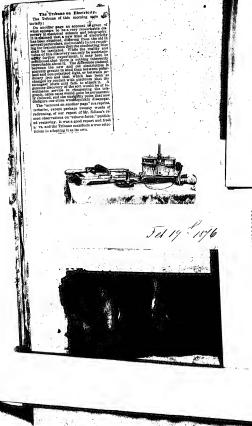
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(From the Manufacturer and Builder.) STENCIL PLATES BY ELECTRO-MAGNETISM,

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TESTIMONIALS

Chas. Bet chebr, Eop., Gord Manager.
We have been using your electricity or and press for sevial months to our entire anti-fection, and fand that is felial as in tar was promised of H. H. in underbedly a great take using marchine in our business. Ree psy your.
DE HAVKAN & TOWN-END.

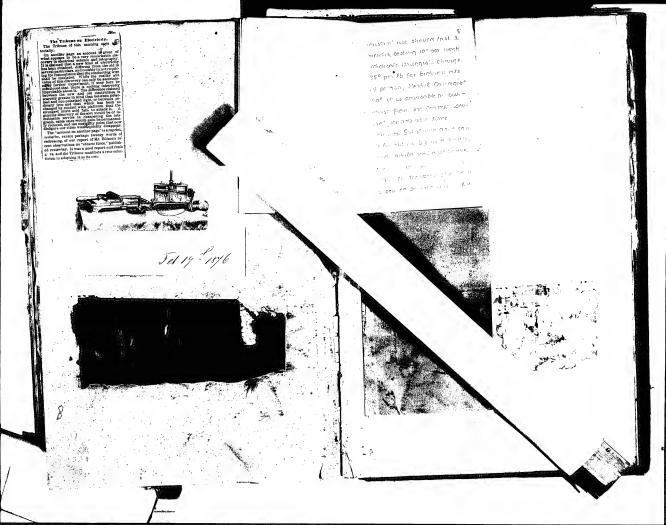
Troy, Jan. 71, P.5.

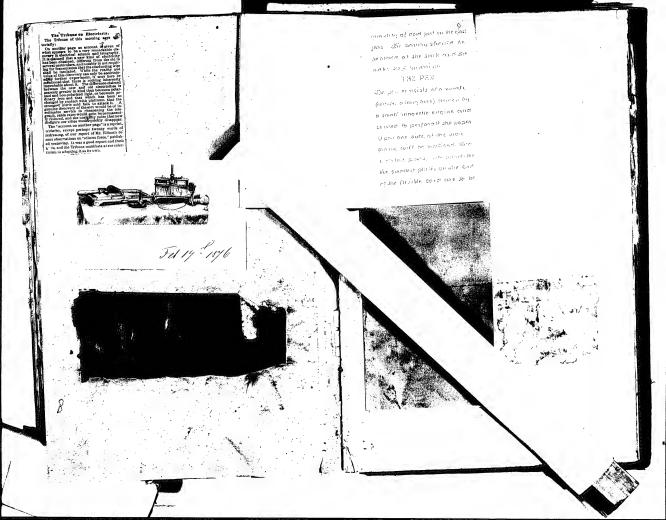
K. S. Harton & Sons, Agts, Edwar Electrical Pen & Dop. Pres-Gentlement:—Our associates speak in such high terms of Eleson's Electric Pen, you can ship one to us a few JOHN McKILLOP & CV.

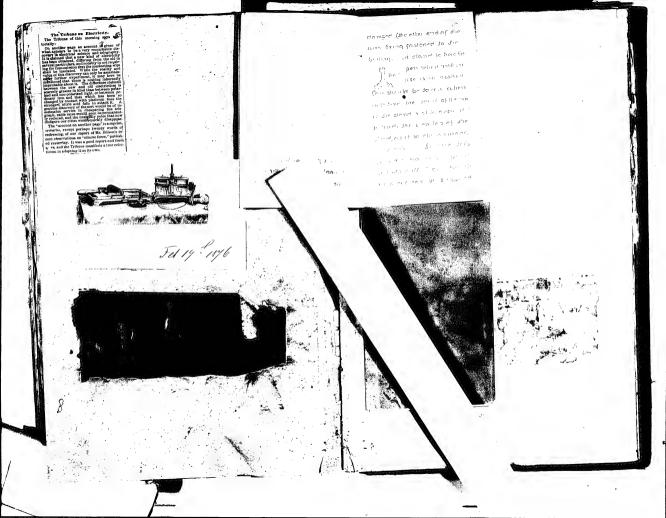
Dear Sir:
The Edison's Pen and apparatus I have already found very needle, at d. I cleverfully say how much they please me and how admirably they work.

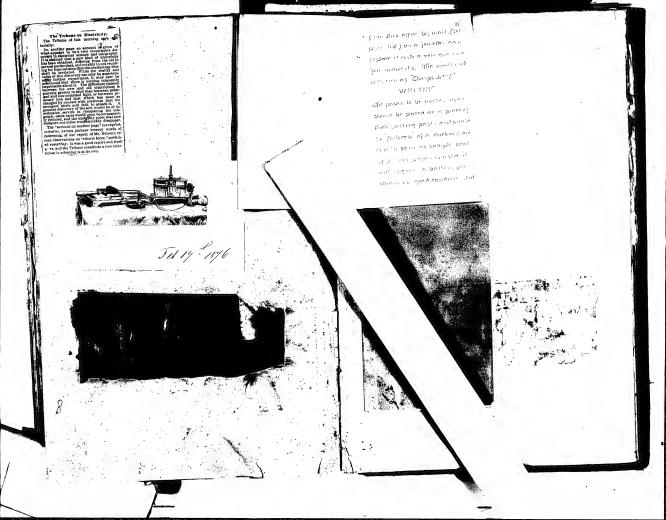
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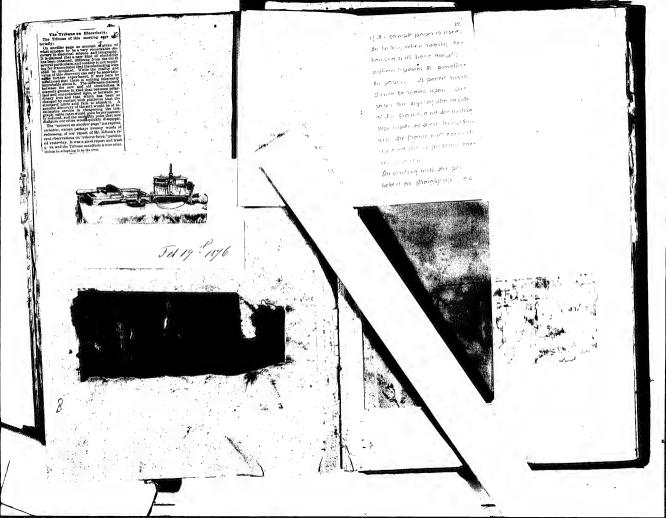


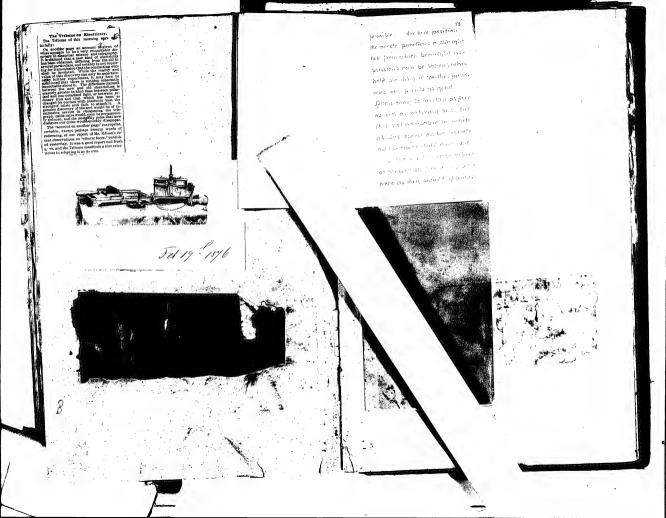


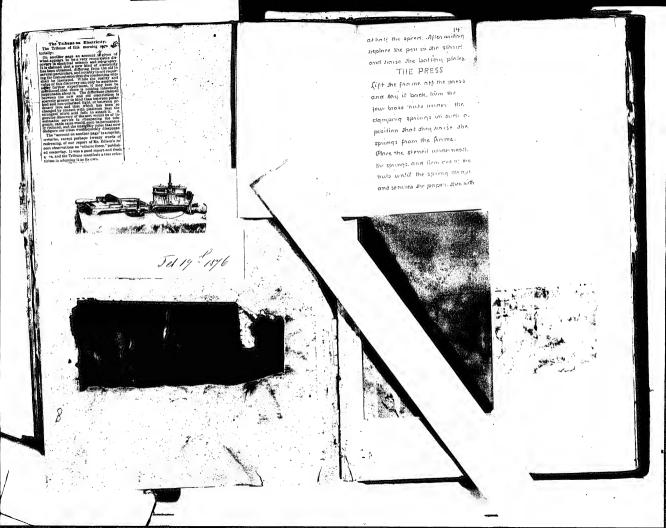


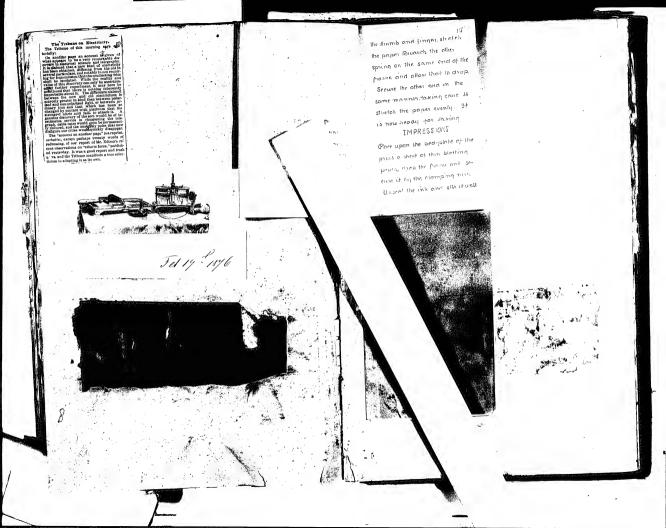


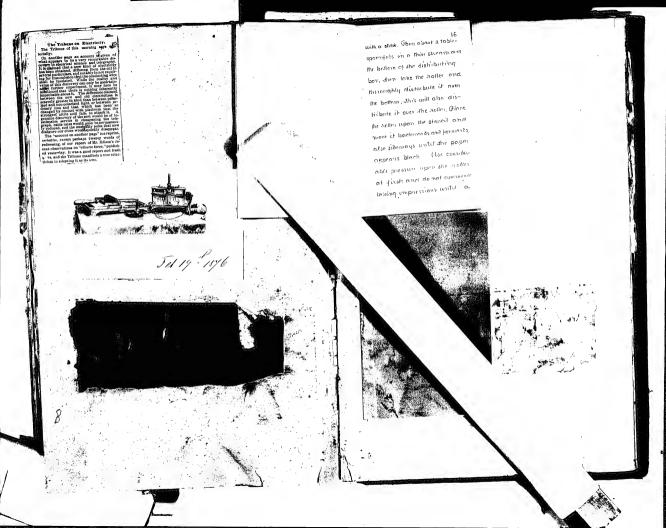


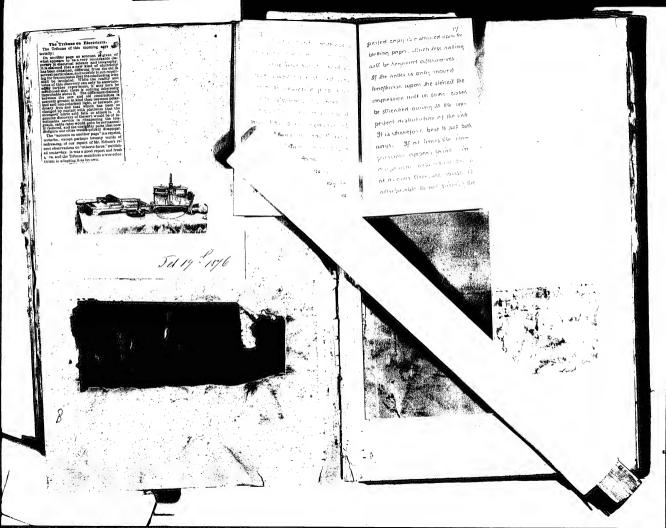


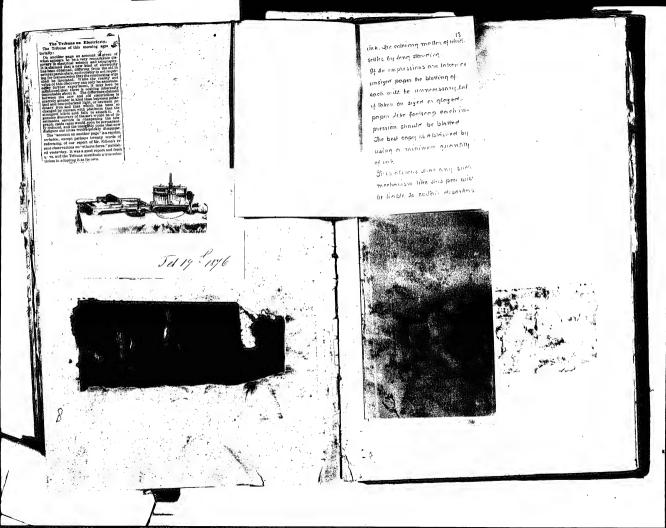


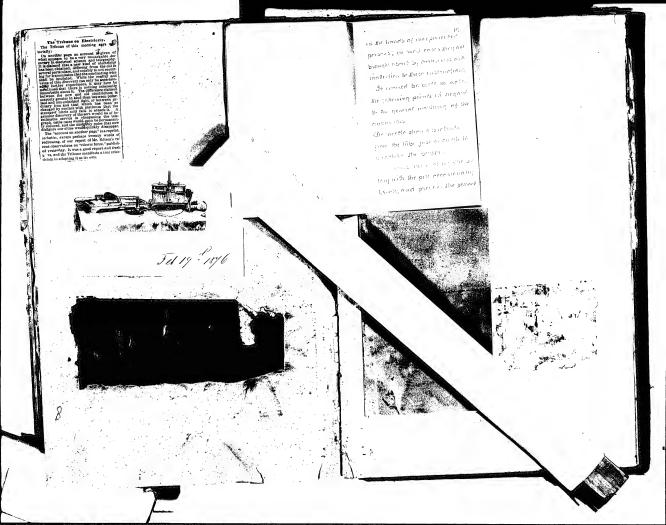


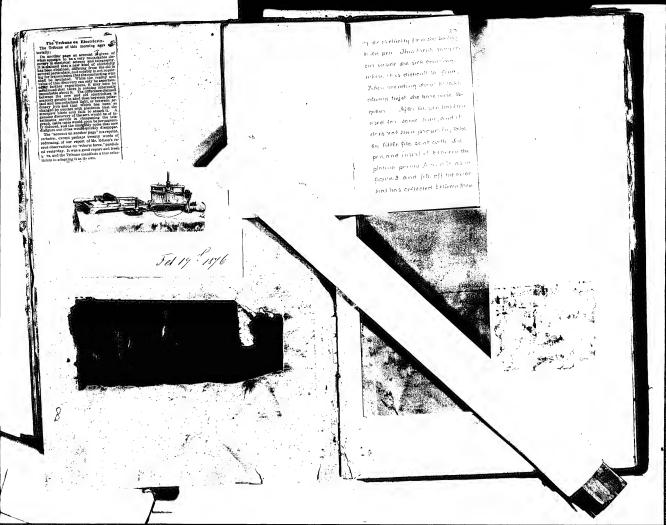


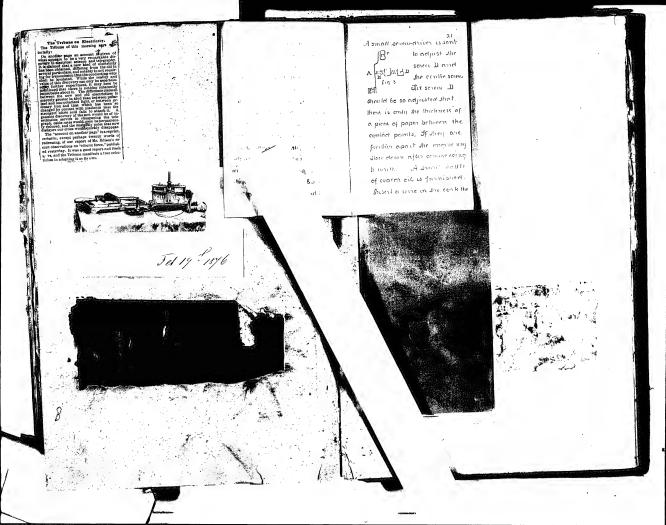


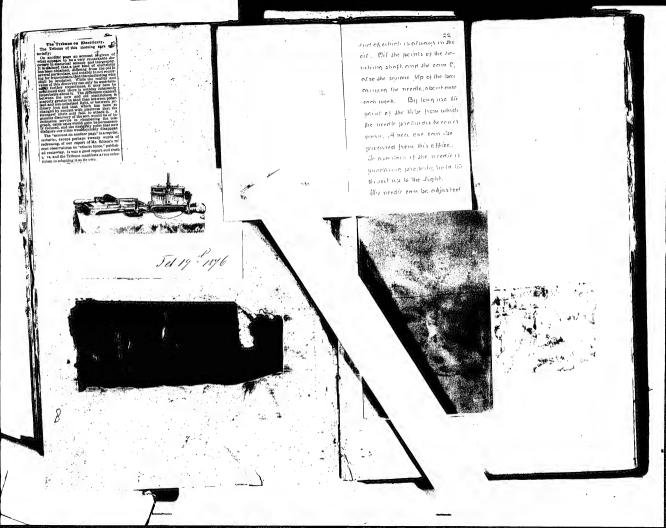


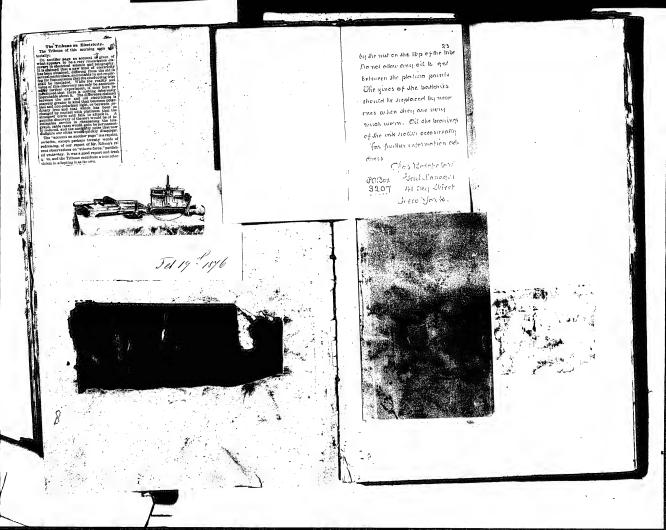


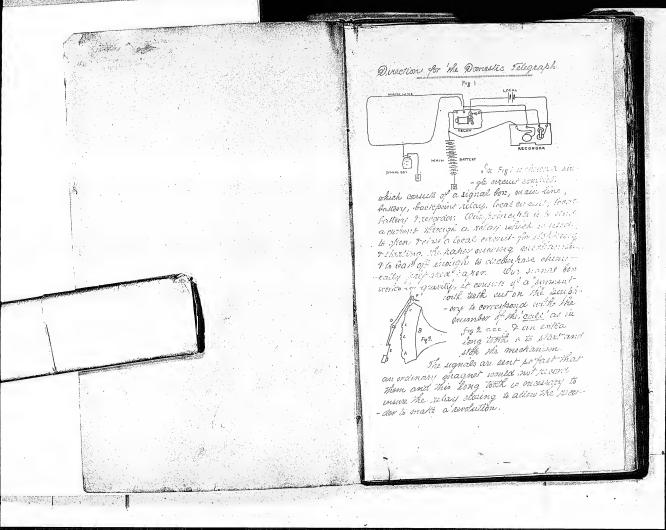












The signal box is also provided with a switch which connects The line only when the button is going up, so that if a customer presses the button so it matters not how long he keeps it down, the signal const transmitted until the futton is allowed to go up. The main line should be a loop with both ends in the office, 4 legs punring off it to the boxes, these legs should be conrected to the bundpost on the one that has a hard subber washer under it, & the other post to the groun; The main fattery should be a belanche as there is Alle or no action when the circuit is open, the local Should a lattered as it is stored most of the lines. The relay connects its local count at the oast nont so that when it is at rest the neconder is stopped by the lover of magnet 6 sign The recorder consults La stockwork carying a duim B for moving the saler, with a magnet Cfor stopping & starting it to platina pointed pen A for decomposing aswill be seen in fig I the decomposing everent is anted of the main line by the invese of f. Owning to the great resistance of the paper the gracies part of the oursent goes through the way rallnor it to respond affect whilst there is am-- july sufficient to make a good mark good Missign the perso Has Don Bot. Co Bournis Cheternal para

Duplex, quadruplex, electro-harmonic and automatic are all about to be consigned to the scrop beap. Inventers who have not yet secured their reward are about to find their genius and labor come to naught, and shrink abashed before the production of Epison's geniur.

The professor of duplicity and quadrophicity is ongaged in perfecting a new telegraphic system, by which any number of messages desired can be transmitted simultancously upon one wire! The catablishment at Menlo Park has not been created for nothing. That seeinded precinct is yet to become famous throughout the earth as the spot where this invention was conceived and brought

The subject is so vast and overwhelming that it paralyzes our good steel peo, and the shock which this aunouncement will create will be so great that we must for the present foregar further comments.

N. B .- It is understood that this invention has, on yot, been sold only to the Western Union Co. Applications will be favorably received from others who may desire to purchase. Former "wicked parties" not excluded from this opportunity to invest.

neutral salts of the heavy metals and of calcium insoluble 1 water, while the rest are soluble.

By treatment of rebacic acid with the salts of various metals. a great variety of crystals and powders of different colors, blue, orange, green, red, white and purple, some of magnificent character, are produced.

Pormation of Gum in Pruit-Bearing Trees. In the wood of a tree diseased with sum, a creat number of versels are always seen more or less completely filled with gum; sometimes they are entirely filled to a certain length, and sometimes the gum only forms a coating either upon all the periphery or only on one side. The gum first shows itself in very small drops, which gradually increase in size and touch each other, forming small irregular masses. Recent German observers have stated that the formation of the grow is due to the discreptization and transformation of the internal part of the wall of the vessel, but the author has come to an opposite conclusion. In examining the wood of an apriost tree from which large masses of gum were ex-tracted, it was found that the vessels were marked with sreolated punctures, and with a spiral line due to a thickening of the membrane : also that the surfaces of the marses of gum were marked with deep furrows corresponding with the spiral lines of the versel wall and even with small projections according with the punctures. It is thus certain, in the anthor's opinion, that the gum has poured into the interior of the vessel, and that the marks upon it are imprinted from the vessel wall.

In the production of gum in the cellule by the transformsmation of storch, it has been observed that, on the first appearance of gum in the cellule, the unchanged storch gathers into small masses, around which forms a thin coating of gum. Gradually the starch diminisher, while the coing of gum increases, until at last the starch disappears altogether, leaving generally a vacant space in the center of the mans of gum.

Often the gum, produced in such considerable quantity, is formed neither in the vessel nor in the cellules, but in the spaces between the young tissues, generally between the wood and the bark, yet often also at the different depths in the wood. These gum spaces grow at the expense of the neighboring tlesues, which suffer important modifications : the cam blum, instead of producing woody fiber, forms collules in which abundance of starch is deposited, which starch subbecomes converted into the gum.-E. Prillieux (Comptes Rendus).

NOTES AND MEMORANDA.

A SHEET of paper, passed through a solution of a Selt of variolities of superior passed through a solution of a Selt of variolities of superior papers of the su

Edison About to Astonish the World Again Stand from Under !

THE professor of duplicity and quadruplicity has been suspiciously quiet for some time. Since his great discovery of the new moonshine, which he christened "etheric for-c," he has apparently subsided, and except as plaintiff or defendant in various suits and applications for injunction, now sgainst the Western Union, then against the Atlantic and Pacific Telegraph Company, with occusional legal dushes at Messrs. PRESCOTT and JAY GOULD, he has made no sign. Satisfied that some great purpose was concealed under this retleence, and determined that the world, and especially the telegraphic world, should not remain in ignorance of the doings of the most remarkable genius of this or any other age and country, THE TELEGRAPHER has taken the trouble to penotrate the mystery which cushrouds his purpose. It has been discovered that the professor is about to natonish the world, and confound the ignoramuses who are engaged in the improvement of telegraphic apparatus, by the production of an invention which has taxed his massive intellect and usparalleled inventive genius to the utmost, and destined to revolutionize telegraphywhich is so frequently revolutionized that the process has become an every day occurrence.

Sebucie Acid.

When easter oil is gently heated with sedium hydrate, the whole solidifies, after much frothing, to a soft yellow waxy mass of sodium richoleste. On raining the heat, this sait much sand decomposes, no sloy distillate passing over, and the residue jeids rebacle acid. This acid, discovered in 1803 by Thenard, usually crystalizes in a multitude of long, fine, but under certain conditions, it r p: rates from the ammonium sebates in very thin, brilliant lamino, with apoculiar bright

Soluble in 700 parts at 20°; in 400 parts at 40°; in 240 parts at 50°; in 50 parts of water at 100°. By prolonged boiling part in 45 remains in solution at 90°. It is readily soluble in cold alcohol and other, easily dissolved by hot other, and ex tremely soluble in hot alcohol. It crystalizes from hot ether in short, transparent needles, and from hot alcohol in the rame manner as from hot water.

It is readily soluble in hot nitricacid, and not decomposed by balling therewith for a moderate time, but separates out when cold; easily soluble in hot hydrochloric acid without change, crystalizing out on cooling; readily soluble in cold sulphuric scid, extremely soluble in sulphuric scid at 100', and separates out unaltered on dilution with water; no sensibly attached f digestion with nitrohydrochloric acid, or potassium permanganate and sulphuric acid.

Aqueous sebacic acid reddens litmus strongly, tastes acid and bitter, completely neutralizes the alkaline hydrates, de-conneces the carbonates of potassium, sodium, barium, stron-

2. It was se oscerved and the rubber intercept generated by the impact of the shoe and the grou its yielding reduces the shock before the same reach animal. We are informed that there is no permanent six ing of the rubber by compression, and that it answer mirably the above purpose for which it is intended. The ventor states that he was enabled to use a horse when shod, which, when wearing the ordinary shoe, was too

There are advantages other than those poted, which re suggest themselves. The shoe is rendered much lighter the wear comes almost entirely upon the outer portion rubber can be cheaply renewed; the foot place wil wear a number of the outer plates.

The form of shoe, as represented in our engravis somewhat modified to adapt it for trotting horses, to greater lightness. To this end the cuter piece, with th coption of the too, through which the holding screw pl is cut down on its inner side to a mere rim, curved it tion, inside of which the rubber, also diminished in all

SAFEGUARD

Billings Burglar Alarm

AS A SAFEGUARD AGAINST BURGLARS.

In these times when most passus feel that it is unsafe to retire for feur of being nyakened in the darkness by some one in their apartments, and perhaps standing over them with pitch darwn, three. "Jegall if they resist or even make a noise, it is a natisfaction to have something that will warm them of the approach, or save them from such danger.

om sacn nanger.

The Billings Burglar Alarm will do this; it is the best and safest watchman that The pillings Bioppler Alaim will do third like the best and ansist varietiment that the employed. It will not like first lummity, fall undersport he beliefed. It cannot the ten variet step, be poissived nor denges, but the state of the properties of of the propert

while is notines you in your secepting apartment, it also meanes the unigar or indi-night assassin of his danger of discovery, and he will leave your place, to seek one not so well guarded.

wen guarued.

This alarm is in the hands of responsible parties here who are prepared to put it in any House, Store, Bank or Office

TESTIMONIALS.

From parties using the Alarm in other cities.

UENTLEMES:—Yours of the 1st at hand; in answer will my, 1 have got one of lillings Elec-tric Barglar Alarms in my place of business and also drelling house, which i prize very high-ly. I would not have it taken out for twice what it cost. It gives perfect satisfaction,

Yours, with respect, HENRY L. KENDALL, Jeweler. The following questions were addressed to Mr. Mabley, of Detroit, who has one in his house, and the answers were attached by him and his signature aprended thereto.

MR. MARLEY,

10. Marker 2 Sec.—Von will confer a very great favor on me, if you will have the kinkures to unseer the following questions and return to my address. It has you mee Blinds with the conference of the conference

We also refer by permission to the following parties who have it in use and have amply tested its working in this City for a period of from four to six months: T. S. P.AGE, 18th and Adams Streets, Dr. W. I. KELLEY, Adams Street, Col. D. F. DEWOLF, 18th Street, between Madison and Adams.

Prices, Blank Applications and any further information desired move be had by calling upon Mr. Wim. Gates, at Wales & Gates, moving Boody House, or of J. Y. Detwiler, Superintending the putting in of the Alarm.

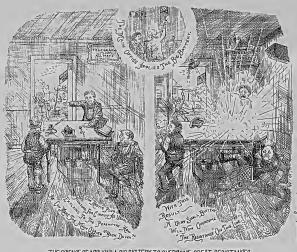
TOLEDO BURGLAR ALARM' CO

OPERATOR CARTOON



Trouble on the "Quad"

The Operator's Cartoon



THE SCIENCE OF APPLYING A BIG BATTERY TO OVERCOME GREAT RESISTANCES.

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Dr. Geo. M. Beard,

OF NEW YORK.

Author of "Our Home Physician," "Eating and Drinking," "Stimulants and Narcotics," "Longevity of Brain Workers," and other popular works, will give his two popular

Illustrated Lectures on the Laws of Life & Health, With Original

STEREOPTICON ILLUSTRATIONS AND EXPERIMENTS.

CHANNING HALL (Unitarian Church, 710 Broad Street), on the ovenings of

Thursday & Friday, April 20 and 21

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Lecture II. What to East and Drinks.

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TIOKETS FOR THE COURSE, 50 CENTS. Single Admission, 35 Cts. Reserved Seats, 50 Cts. Tickets for Sale at Dennis' Bookstore,

LOVERS' TELEGRAPH

CUPID'S MAGNETIC CORD

By means of this most ingenious instrument, a secret conversation may be carried on between any Lady and Gentleman at a considerable distance apart, or in separate rooms, or neighbors living opposite or at a distance can carry on conversation just as well as if they occupied the same room.

Messages can be sent or conversation carried on from one to three miles. These instruments are being adopted by several large telegraph companies for short distances, thus saving the expense of wire, poles, battery and operators.

INSTRUCTIONS.

Hold the instrument with the open end close to the ear, or if asking a question, with the open part of the tube close to the mouth, speaking in a low, clear tone. Keep the cord quite tight, and care must be taken that it does not come in contact with any object, otherwise the transmission of the message will be prevented, unless you use our new insulator.

TEST.—Place a watch against the open end of the tube, place the other tube against the ear, when the ticking will be distinctly heard a distance of lifty yards.

Samples sent, postpaid, on receipt of fifteen cents. Special discount made to the trade. Our agents are making from ten to fifteen dollars per day. Address

Defiance Burglar Alarm and Telegraph Co., 132 Nassau Street, N. Y.

P. N.—Our instruments are repectally adapted to sound on long distances, being supplied with the Pumplex tension duranteed. Since publishing on which we can connect lines, torard to remove the substantial instantion, by means of which we can connect lines, turns corners, and you in any irregular direction around were or under any obstance. For ten cents extra we furnish these insattators, which also multiply sound and enable the line to be worked an indefinite distance.

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ELECTRIC PEN AND DUPLICATING PRESS.

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A seat in equity has been brought in the Carrel States Great Court by George Herr as too and Homes A. Educar against the Atlantic and Pauller Fely legi-ly impany and Jay Golds. The parallel chain to hold the title to the or's inventions of any exements in the final automates to comply and depicts and quot studies belongly. The roughout of a such the late of adding the role and put the following cations grather application in balancier could not

JANUARY 29, 1876.]

Correspondence.

Mr. Edison's New Porce. To the Editor of the Scientific American:

I have recently made some experiments with the so-called otheric force, the results of which will be found below. As the subject is one which has attracted considerable atention of Isio, I have taken appealed care while making the To the Militor of the Scientific American : tests, and have also carefully verified the results by repeti-tion. You will notice that the indications tend continually Thomas A. Edison, in the last clause of which he describes to on direction, blendlying the force with concriting the process of the concrete process of the concr electrical nature. I was man out to desire the substitute of and up to the floor above the one where the generator was round itself, in the colls; but it remained to prove these because and we not desire the the substitute of because it is the colls; but it remained to prove these because and we not drawn from that end of the wire, all conclusions correct. In order to settle the question so far as the deve-

terned. It has been stated that this force traverses with equal facility both good and bad electrical conductors, that it cannot be insulated, and that, in this portionly at least, it is quite different from electricity. These statements seem strange in connec-tion with another, which accompanics them, to the effect that manifestations have been transmitted through coils equivalent in resistance to many thousands of miles of telegraph wire. In a case of such apparent contradiction, the stateients should certainly be qualified by some evidence that the manifes lations traversed the wire rather than that they passed through the insulator. In any event, however, the first statements are wholly irreconcitable with the following tests, made a few days ago:

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A short piece of wire was fastened to a bress sing on the end of a glass rod, the latter carefully dried. The

and were alandy visible in daylight. Another brans ring it was strewards placed upon the rod, but not a single species, which is not security to species of a but to be single species of the property of the species of

The above regarded policy and a control to the time.

The above regarded policy above the control to the control of the contro possestions urrestly with use armstates of the vibratory has his discovery, and hope of the fore is connection with the battery by one of its fermilates only. When the vibrator was put is muitine, desticates were obtained at some. Fairful, however, that the sparty was an affective to deal or the product of the contraction of the contr ficient to close up the gap between the armature and 3, sout thus shunt the galvacemeter, and that by this means part of the battery current would pass through the galvanometer and cause a deflection, I clead all of the points (see Fig. 2). This gave me a deflection of 25°, and indicated approximately what might be expected in case the spark did actually close the gap. The adjustable points were then separated ly close the gap. The adjustable points were then separately and the armsture allowed to vibrate. The spot of light immediately ran up to 50° or more. By carefully regulating the points, I was enabled to get a deflection of ever 400°, and rould obtain it either to the right or left. The deflection is the direction of the battery current, however, was somewhat greater than the opposite one. It was evident, therefore, that the battery current did not directly produce the defice

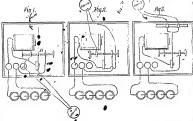
A still more decided test was next made, which I am di-A 4th more accordance. The galvanometer wires were led directly to the rings on the glass rod already mentioned. The rings were slightly separated, and each provided with a wire, between the ends of which the armature was allowed to vibrate, striking one wire at each vibration. Fig. 3 shows the arrangement. Sparks immediately appeared on each side of the vibrator in the very slight interval which separated it from the ends of the wire, and a deflection of 300° or 400° resulted. This was always in one direction, so long as the direction of the lattery current and connections remained unchanged, but passed in an opposite direction when the poles of the battery or wires leading to the galva-nometer were reversed. With fifty cells of lattery, the spot

of light was thrown entirely off the scale

Scientific American.

iron for the armsture. The coil measured perhaps two o three obuss. Fig. I gives a fair idea of the instrument. The galvanometer was one of Thomson's mirror instruments, and ontains something over 29,000 ohms resistance. Errormov New York city.

The New Perce.



EXPERIMENTS ON THE NEW FORCE, wire was then placed in contact with the armature of a vibrator, or at least very close to | though the ground the wire laid on was wet, it having rained

Sparks passed realily between the wire and armature, all night."

I were plainly visible in daylight. Another brass ring The "source of power" he speaks of, I take it for grant when fifty cells of gravity battery vero used to work the the officials graving battery used for telegraphing. I have vibrator. Four cells were used most of the time.

The above experiment plainly indicates that the force on wire, laid in sex water cosposator of z mile, as perfectly and recording register through a maked.

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JANUARY 29, 1876.

New York city.

197 Correspondence.

Mr. Edison's New Force.

To the Editor of the Scientific American: I have recently made some experiments with the so-called

atheric force, the results of which will be found below As the subject is one which has attracted considerable atention of late, I have taken special care while making the cests, and have also carefully verified the results by repetitests, and have also carefully verified the results by regul-tion. Yes will condend that the indications tend containing Tylmonas, Albiton, in the lost cincon or which his electric forces in the containing the presentation of the containing the presentation of an entire the containing the presentation of the containing the presentation of an entire the containing the presentation of the containing the conta electrical nature. I was also led to believe that its origin a whole block and back into my laboratory by another door, reat on itself, in the colls; but it remained to prove these (Excellent sparks were drawn from that and of the wire, alonclusions correct, in order to set-

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It has been stated that this force traverses with equal facility both good and had electrical conductors, that it cannot be insulated, and that, in this particular at least, it is quite different from electricity. These statements seem strange in connection with another, which accompanies them, to the effect that manifestations have been transmitted through colls equivalent in resistance to many thousands of sulles of telegraph wire. In a case of such apparent contradiction, the statements should certainly be qualified by some evidence that the manifestetions traversed the wire rather than that they passed through the insulator. In any event, however, the God statements are wholly irreconcliable with the following tests, made a few days ago:

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New York city.
only. When the vibrater was pai in median, deflections were obtained at once. Fearful, however, that the spark was suf-ficient to close up the gap between the armature and B, and thus shunt the galvanometer, and that by this means part of the battery current would pass through the galvanometer and cause a deflection, I closed all of the points (see Fig. 2). This gave use a deflection of 25°, and indicated approximately wint might be expected in case the spark did actually close the gap. The adjustable points were then separated, and the armature allowed to vibrate. The spot of light im-mediately ran up to 50° or more. By carefully regulating

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189° or 400° resulted. This was always in one direction, so long as the direction of the battery current and connections remained unchanged, but passed in an opposite direction when the poles of the battery or wires lending to the galva-nometer were reversed. With fifty cells of battery, the spot of light was thrown entirely off the scale.

The vibrator used in these experiments consists of an electro-magnet about two inches long, with a thin piece of

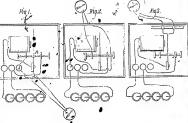
Scientific American.

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The New Porce. To the Editor of the Scientific American:

In your paper dated January 1, you publish a lotter from



EXPERIMENTS ON THE NEW FORCE,

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Fig. 1.-VOLTAMETER AND DANIELL BATTERS

PHENOMENA OF INDUCTION. By Professor EDWIN J. HOUSTON.

CHARLES TO THE OWNER.

By Profesor Entry J. Horravox.

The public year by surice he accord necessary within a Tempelory gave by surice he accord necessary within the professor of the public policy. The public year, the public policy of Newnon, N. L. which has been spiced by the "Ehner News" and the manifest general interest policy of the purpose of the pursual. In the Accord of the critical policy of the pursual, the Accord of the developing of a man september which the result is not a publication of the purpose of the pursual. The Accord of the developing of the purpose of the pursual to the date of publication, and which here, both in method. The experimental subsidies of publication, and which there, but he method to the public publication of the purpose of the transport of the transport of the purpose of the



dry lecture-table, that the volume or quantity of the mark was greatly increased, and at the same time the characteristic whitening of the condensed spark produced. These results I attributed entirely to a condensation of the spark by connec-tion with extended surfaces, similar to the condensation pro-duced by the introduction of a Loyden battery into the cir-suit.

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Philadelphia.

I append a brief description of our experiments. The induction cold already neutroned was worked by means of an electro-poin lattery of the cells coupled for an intensity of ten. The elements of each cell consist of a single plate of ten. The available surrounded to the cells of the cells



fees in each cell is about three by six incers. One pole of the lattice was pixed in metallic connection with a gea-pip, and the control of t

LEONARD MYERS.

ATTORNEY AT LAW. 125 South Seventh Street, Philadelphia.

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Direct Process in Heliotypine

THE heliotype process has recently exhibited an interesting and valuable improvement, whereby much time and labor are saved, with no resulting loss in the artistic perfection of the work. By the usual method gelatine films are made sensitive to tigns, and when placed under photographic negatives and exposed to sunlight, are so affected as to become water-proof wherever the light fulls upon them. The rest of the film, the parts shaded by the nega-tion of the film, the parts shaded by the nega-tion that we could be absorbed to be for the film. method gelatine films are made sensitive to light. The rest of the film, the parts shoded by the nega-tive, still retain their penulirs absorptive qualities and take up water readily. Printer's ink (contain-ing green), percent upon the film, then authers to the affected parts, and is rejected by the portions tak still retain water. In this way the film prints a copy of the pleture or document shown in the negative. By the new process all the photographic work is omitted. By the said of tamic said the effects obtained by the authon of light are reached. by simple contact. In place of employing a nega-tive of the picture or document to be reproduced in heliotype, the subject is merely drawn or written with a pen dipped in a solution of tannic acid, or any copying ink containing tannic acid. The sub-ject, he it letter, design, plan, or picture, is then laid on the moist film and submitted to pressure. The tantie ratid in the lak then water-proofs the film where it touches, and it will resist water and accept grease precisely as will a film prepared by the usual actinic method. It may be then used to print from, or a transfer may be made to lithographic stone or to zinc. By transfering to zinc and treating the plates with neid, a relief is obtained that may be used in an ordinary printing-press. The advantages of this direct transfer of the pen-drawing to the gelatine film are obvious. The time, labor, and expense of photographing are all saved, the exact reproduc-tion of the original is secured, and an autographic copy obtained that gives the author or artist in fre-simile.

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Chas. C. Veaton. OFFICES AND ARTERS

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First-One original writing will yield in the ordinary Letter Press, without other appliances than these used in ordinary opying, 20 to 30 copies upon Tissue Paper. Second-It will yield from 10 to 20 copies upon LETTER PAPER-one retirely new feature; these copies being re-transferred

from a Theore Copy, are right side up and readable from the face of the paper and not through it.

Third-It will also yield expresenter from the original or from the copy at any time subsequent to the original writing, thus making it practicable for Lawyers. Merchants. Brokers, Reporters, Insurance and Real Estate Agents, makine it mentionite for Lawyrers, Merchantas. Brokers, Reporters, Insurance and Real Estate Agents, Cheryymen, and the Professional Business Community generally, any time to shipters any pure which they may have our record. Also evaluate the treipient of a briter written with this list, as obtain from such discussion, without the labor of recording the brightening of a briter written with the labor of recording the brightening and writer of a better one approximation of the laborated properties of the contract of the laborated properties of the contract of the laborated properties o non-matter) witness are more or resorring; nor group as warms on a trees a very a manner of the whole matter at hard for course filting in his pigeon bode with matter of the same subject, thus keeping a complete record of the whole matter at hard for course matter of the foreign and the same subject in the same that an analysis of the same that an analysis of the same that an analysis of the same subject in the same that an analysis of the same subject in the sa ments of regeneral this sixes has annoyance in mining through a promocinent energians, as configuration upon any given matter. The property of transferring upon hard paper fletter (upox) being an entrety new one, and possible with no other link, sources. The property or transferring upon men paper petter papers even on the large way and proper want or middle the erecties for this a new field, and one which, in view of the simplicity of the means by which these nevel results are obtained, must consoliately be occupied by it.

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PRICE No. 1 Bottles, ---- (Half Pints,)

For Sale by GEO. W. SMITH & CO.

Law Booksellers, Stationers, Printers & Blank Book Manufacturers, No. 95 Nassan Street, New-York.

DRAFTING LEGAL CAP, \$1.40 per Ream. LAW CASE PRINTING, first-class work, 80 cts. per page.



THIS IS A NEAT, HANDY, AND VERY EFFICIENT SUBSTITUTE FOR LIQUID MUCILAGE.



A long narrow tape of paper is gunmed on both sides with the same material as used on postage stamps, put up in a next box having in its edge a slot from which projects the end of the ribbon, or tape. When a piece is required, the requisite length is drawn out and broken off. The gumning of both sides, of course, makes it practically a ribbon of gam-or mucilage-and to use it for any purpose whatever as a substitute for mucilage it is only necessary to moisten it on the tongue and insert between the papers which it is desired to fasten together.

It is superior to liquid mucilage in the following particulars:

1st.-It is always neat and handy.

2d .- It contains only the moisture gathered by contact with the tongue, and will not therefore cause the paper to crumple as does the fiquid mucilage, which is necessarily largely composed of water.

3d,-It will adhere more quickly and firmly, there being less water to evaporate than in the case of 4th.-It is always ready for use, and is not subject to different degrees of consistency and an almost universal

5th.-It nots so quickly, and is so neat, that it fills some wants which mucilage cannot; as, for instance, tacking together a number of sheets of a written document, for which brass tacks, or pins, are now used.

6th.-Por numberless trifling purposes, requiring haste, of not sufficient importance to warrant the slow application of a mucilinge brush and pot, this ever ready and handy material will make its value felt.

7th.-No matter why! But where and when did amone ever see an orderly, well behaved muchage pot and brush in a private family? And who has not had painful experience of such absenteeism? Now the remedy for this distressing state of things is clearly in something which, while cheap and always ready, can be thrown into the sewing machine drawer, "my lady's" tollet case, the housekeeper's pocket, or the chambernaald's mysterious rereptacle; one box in each for convenience of arces.

A moment's thought and a personal examination and trial of the ribbon muchage will take the glamour of jest off the 7th recommendation and clothe it in the labiliments of sober truth, when it will be readily seen an immense unoccupied field is open for this valuable lavention to enter.

GIVE IT A TRIAL.

Price, 15 cents each, or two for 25 cents. FOR SALE BY

& AMERICAN NOVELTY COMPANY

CIRCULAR.

52 BROSDWSY, NEW YORK, JANUARY 10, 1877.

NEW INVENTIONS.

EDISONS DUPLICATING UNK.

This Duplicating or Transfer. Ink, designed for the multiplication of copies by means of the common Letter Press, has properties entirely distinct from any other in the market. It will do the following:

First. One original writing will yield in the ordinary Letter Press, without other appliances than those used in ordinary copying, 20 to 30 copies upon Tissua Paper.

Second. It will yield from to to so copies upon Little Parts-an entirely new feature; these copies being re-transferred from a Tissue Copy, are right side up and readable from the face of the paper and not through it.

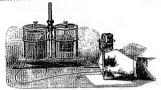
Third. It will also yield copies either from the original and from the copy at any time subsequent to the original writing thus making it practicable for Lawyers, Merchants, Brokers, Reporters, Insurance and Real Estate Agents, Clergymen, and the Professional Business Community generally, at any time to duplicate any paper which they may have on record. Also enabling the recipient of a fetter written with this ink, to obtain from such letter a number of copies (fac-similes) without the labor of re-writing; also giving the writer of a letter a copy, in addition to his letter-book record for filing in his pigeon hole with matter of the same subject, thus keeping a complete record of the whole matter at hand for convenience of reference; this saves the annoyance of hunting through a promisenous letter-book for correspondence upon any given matter. The property of transferring upon hard paper (letter paper,) being an entirely new one, and possible with no other link, creates for this a new field, and one, which, in view of the simplicity of the means by which these novel results are obtained, must immediately be occupied by it.

PRICE

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FOR NALE BY

EDISON'S BLECTRICAL PEN AND DUPLICATING PRESS.



CHAS, BATCHELOR, General Agent for Foreign Countries. P. O. Box 8207.

The American Novelly Company,

J. E. SUITTERLIN, Measure Malionery Department,

EDISON'S DUPLICATING INK.

Yields tennermin letter-poses copies from our written. Also con mistre from surface spec-

ng also a homearthropic tipes.
Letter Poper.
Og to may be taken at any interesting their file this, had see Latter pass Org. Piles of the Fer and by P athenese,
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DIRECTIONS.

Edison. The new lasel for inh - good casel.

The American Novelty Company,

THOS A. EDISON, E. H. JOHNSON, J. E. SUITTERLIN,
B. SAN, Section and the C. Margor And may be present

EDISON'S DUPLICATING INK.

JOHNSON'S RIBBON MUCILAGE

NUMEROUS OTHER ESERUL ARTICLES OF SMALL COST.

No. 52 Broadway.

NEW YORK

THE TELEGRAPHIC JOURNAL

JANUARY 1, 1878.

making, with Dungeness, a triangle of lights over the Channel. the Claimel.

These powerful and somewhat expensive lights, however, are unlif for the general illumination of streets and buildings. With used multi laudivalual lights as are there required, the carbon points are unregularly supplying fresh points is also an objection; but the main difficulty lies in the proper division of the light among various jets of different sizes. It is clear that by connecting a number of different seed to of points in series, the break down of one set would not point in series, the break down of one set would be a supplying the points of the series, the break down of one set would not point in series, the break down of one set would not be a supplying the points of the series of t interrupt the current and extinguish the whole.

Again, the use of a variety of circuits derived from Again, the use of a variety of circuits derived from each other, and dividing up the main current from the machine into a number of branch currents, is attended with several practical difficulties; for example, the extinguishing of one light would increase the rightness of the rest, since the current which had been supplying it would help to strengthen the currents in the other branches.

(To be continued)

EDISON'S TALKING PHONOGRAPH

THE principle on which the machine operates is as follows:—There is, first, a mouth piece, A, Fig. 1, across the inner orifice of which is a metal

and the point thereon is caused to make contacts and the point thereon is caused to make contacts with the tinfoil at the portion where the latter crosses the spiral groove. Hence, the foil, not being there backed by the solid metal of the cylinder, becomes indented, and these indentations are necessarily an exact record of the sounds which

It might be said that at this point the machine has already become a complete phonograph or sound writer, but it yet remains to translate the remarks made. It should be remembered that the remarks made. It should be remembered that the Marey and Rosapelly, the Scott, or the Barlow apparatus proceed no further than this. Each has its own system of caligraphy, and after it has in-serthed its peculiar simous lines it is still necessary to decipher them. Perhaps the best device of this kind ever contrived was the preparation of the human car made by Dr. Clarence J. Blake, of Boston, for Professor Bell, the inventor of the telephone. This was simply the ear from an actual subject, suitably mounted and having attached to its drum a straw, which made traces on attached to its drum a straw, which made traces on a blackened rotating cylinder. The difference in the traces of the sounds uttered in the ear was very clearly shown. Now there is no doubt that by practice," and the aid of a magnifier, it would be possible to read phonetically Mr. Edison's record of dots and dashes, but he saves us that trouble by literally making it read itself. The distinction is the same as if, instead of perusing a book ourselves,



displaying, and to the centre of this displaying is staticle a spini, and in the centre of this displaying is staticle a spini, and is such as the staticle as the spinior supported on a shall, which it is branch traceded and turns it a man for a bearing so that the reduced and turns it a man for a bearing so that the reduced in the spinior is caused to revolve by the spinior in the spinior is caused to revolve by the spinior in the spinior is caused to revolve by the spinior in the spinior is caused to revolve by the spinior in the spinior crank, c, it also has a horizontal travel in front of the mouthpiece, A. It will be clear that the point on the metal diaphragm must, therefore, describe a spiral trace over the surface of the cylinder. On the latter is cut a spiral groove of like pileth to that on the shaft, and around the cylinder is attached a surface of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the mouthpiece, a, the diaphragm is caused to whente

Fig. 2

and befold like vace of the author is heard repeating his own composition.

The reading mechanism is nothing but another the way below in the time, in one opposite side of the way held in the time, in one of the way held in the time, in the opposite side of the way held in the control of the way held in the property of the way to be supposed to the vibration of the way to be supposed to the vibration of the way to be supposed to the indeathcan. The vibrations of the passage of the indeathcan. The vibrations is the passage of the indeathcan.

JANUARY I, 1878.7

THE TELEGRAPHIC JOURNAL.

however, of this point must be precisely the same as those of the other point which made the indentations; of the other point which made the indenta-tions; and these vibrations, transmitted to a second membrane, must cause the latter to vibrate similar to the first membrane, and the result is a synthesis of the sounds which, in the beginning, we saw, as it

even analysed entitle to the readers were analysed entitle to the readers with the machine which it them atoms entitled of large had a cust of a portion of the indented foil save had a cust of a portion of the indented foil save had a cust of a portion of the indented foil common the common of the common that the com ore, analyses.

In order to exhibit to the reader the writing of

clement of time is an important distor in the immilia-ment aster of the tones. A sound which is com-pensed to the common of the common of the com-pensed to the common of the common of the com-pensed to the common of the common of the com-pensed to the common of the common of the com-pensed to the common of the common of the com-let the common of the common of the com-let is should be turned at precisely that same speed while reproducing them, cles the tones will that it should be turned at precisely that same speed while reproducing them, cles the tones will higher or lower than the normal note, as the opinion of the common of the common of the com-line of the common of the common of the com-tine of the common of the common of the com-tine of the common of the common of the com-tine of the common of the common of the com-tine of the common of the common of the com-tine of the common of the common of the com-tine of the common of the common of the com-tine of the common of the common of the common of the com-tine of the common of the common of the com-tine of the common of the common of the com-tent of the common of the common of the com-tent of the common of the common of the com-tent of the common of the common of the com-tent of the common of the common of the com-tent of the common of the common of the com-tent of the common of the common of the com-tent of the common of the common of the common of the com-tent of the common of the common of the common of the common of the com-tent of the common of th and combines in itself two separate devices—the phonographs or recording apparatus which produces the indefenced slip, and the receiving or talking contrivance which reads it. Thus in use the first machine would produce a slip, and this would for example be seat by mail disturbent, together in all cases with information of the velocity of rotation of the opinion. The recipient would for example be seat. The recipient would fine set this example that the set of the velocity of the velocity of the velocity. The recipient would then set the opinion of the velocity of the cases use same speed, and it this way he would hear the clones as they were uttered. Differences in velocity of rotation within moderate limits would by no means render the machine's talking indis-tinguishable, but it would have the curious effect of possibly converting the high voice of a child into the deep bass of a man, or vice veral.—Scientific

ERRATUM.—Review of "The Application of Electricity to Railway Working," puge 311, and column, line 37, for "does not really give any," read "really gives that."

THE TELEPHONE AND ITS APPLICATION TO MILITARY * AND NAVAL PURPOSES.

By W. H. PREECE, Vice-President Sec. T. E. and Member Institution Civil Engineers.

No one can deny the enormous value of the electric telegraph for warlike purposes. It has well night revolutionised the art of war. It has become a todegraph for wirdine purposes. It has well slight of the purpose
cattered; it is in maintaining a uninterrogue memoritor between all parts of a beinging force, consistence of the property of the control of the collision, that it is so serviceable. It would have the property of the property of the collision influence, for it not only tends to abstract the adjus-cialization, for it is not only tends to abstract the collision of the trade of the collision of the trade of the collision of the trade of the collision of the trade of the collision of the trade of the collision of the collision of the collision of the trade of the collision of the collision of the collision of the trade of the collision of the collision of the collision of the trade of the collision of the collision of the collision of the trade of the collision of the collision of the collision of the trade of the collision of the collision of the collision of the trade of the collision of the collision of the collision of the trade of the collision of the collision of the collision of the trade of the collision of the collision of the collision of the trade of the collision of the collision of the collision of the collision of the trade of the collision of the collision of the collision of the collision of the trade of the collision of the collis

that of Cleana Pacha.

So important is efficient telegraphy one considered for the British Army, that 6 officers and 150 men are being trained and maintained in efficiency in the British postal telegraph system, to as dealy rebassing that part which they may have some day to perform in carnet: in an enemy's country. Moreover, we have our field telegraphs in constant training at Alderande, Chattiani, and elsewhere, thought is a very desired whether this property of the rest of the control of the country.

. Pend before the Royal United Service Institution, Dec. 2121

Scrapbook, Cat. 1173

Between May 1871 and February 1873 this volume was used as a record book for stock removed from and returned to the tool room of the American Telegraph Works. From March to December 1874 incoming correspondence and orders were glued to the pages of the stock book. The volume originally contained 551 numbered pages. Alony of these have and orders continue to page 1996. The correspondence and orders continue to page 1999.

Mest of the correspondence is addressed to Edison, Charles Statchelor, and the manufacturing iftro ff Edison & Murray. There are applications from instrument makers in response to newspaper advertisements for overimen, as well as orders for telegraph instruments and other electrical apparatus. Many of the orders involve perforating and receiving apper, chemicals, glue, and battery materials for the Automatic Telegraph Company. Some of the correspondence concerns the business affairs of the Domestic Telegraph Company.

n order to microfilm the incoming correspondence and orders for 1874, it was necessary to remove them from the stock record book. Each item contains a penciled notation, written by an archivist, designating the apage number of the stock book and the position of the item on the page. The original order has been preserved. The stock book itself has not been fillimed.

Related material may be found in the Document File for 1874.

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147 East-28th Ge

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American Found of Science, Son Staven, Ci., May 22/874
Chas. Batcheles & G

To DANA & SILLIMAN, D.

For out 1874
Ph. 00

Mucol frayment

Dana & Silliman

The N.

Amgrigan Anstitute of Mining Engingers,

SECRETARY'S OFFICE,

Philadelphia, May 2la 1874

Mr J. a. Edison

10 × 12 Hard St

Newack M & Dear Sir

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Your truly Thomas M Drown Sery Jew 6.2%,

Chos I pope & second New York May 22 1874

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21-1

GEO. Y. MILLER, Druggist and News Dealer, Laverne, N.Y. Jerry (2874)

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Respectfully yours. GEORGE Y. MILLER.

Mactory, 3. 5 tree years been selling I have for the finds neffs buttery to families & phy serious for \$10. and afact from its uncertainty in weating at all times, the general impression is that the cost is to high . - I would let to by yours in this vicinity if it was we every to get ready & manage as heffs, for the price is a prime object. Jon will place which delicate in went of the acids an employed or each copper, or Richarde Polaces. Africa State Conditions for Agend. Negarity Some Lynn

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May 281874

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25-2

Opposition Line! Prices Reduced!

Franklin Telegraph Co.

Lines East, West, North & South.

By Bolograph from atica

Delegraph when recorder & Dox will be here we

must have auxuro

This message has just been received at the office.

ROUDEBUSH, DENSMORE & CO., Brokers in Petroleum

- J. A. Eddin & July

Mush, Sy M

desires to Thurs of you can care at this office at run on Friday to confir with him respecting a contract for manufactioning Type willis. If the hour is

and comment please advin us by Thepuple

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26-2

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Mew York June 16/4 hive years. If you think I Could do kay thing either Have you done Thing about The Budmen on Condencers of at Intrument, please drop me an answer Which Mr Howard But to see you deveral time to this yours respectfully but he failed coast time. in Today o Them them you Thily H. Brady I howe another on welegraph 12 New Church motioned mail of the time. New York Examiss which has been at different lines about

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Tronton, St. J., Jane 27 1874

Charles Outchelow Eng Dear Six

Demples We have on

hound about 60 dg of faces 3 m bogh by mealy 3/2 mide that we well gett you at 100 har day not . as this is

The feeling peason please let me hear farm you some

a they may be sald to

your very tinky James more here The American Crockery Company,

MANUFACTURERS OF EARTHENWARE,

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Jup gous in gaing about Jelly Can study wied Coul 30 rage combat account gour personal into sell you so prope at into sell gour lang lang. Chilism Lie

33-(2)

Jos. Moore & Sonia,

10 to the time time.

10 to the time street.

10 to the t

H. E. WALTER, Provident.

HON, A. H. EL-WOOD, Secretary.



The Walter Electric Burglar Alarm Co.

GENERAL OFFICE 13 & 14 PARKER BLOCK.

Whica, N. G. May 19 1274

Dear Ed.

Please ask Edison what he can
Manufacture our Alarm for, lowest price
If don't want make clock work say whatwite make vest for Case sale =

Dry get Some orders for alarm =

Please have Edison ship Ite frie alarm
at the rory earliest moment passible =

We think we can do will on the

Ploon you or father plen.

Jours in haster

34-2.

Odd

Partrick, Pannell is De

PRACTICAL TELEGRAPHERS AND ELECTRICIANS,

MANUFACTURERS AND DEALERS IN

Telegraph and Electrical Instruments and Supplies,

No. 38 SOUTH FOURTH STREET.

SO SOUTH FOUNTH STREET.

Theladelphia, Jeine 8. 1874.

In back here staturday p. M. Will have copy of home papers over there last of his week for your recent on the reining making if claims the Haveyor recover an order for dig invatorium from as here! If not please enter it now we want them on to a little week attending to brainess there, sprace he had your end of good of this time. Oblease to not mention in my anything bank the lingles them action - Sout went them to termble will we get these papers in the proper shape. Dean coming to your aid a proparation to take some of your join cracked the last work at the some of your join cracked the some of your join cracked the with the some of your join cracked the with the market in good type

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Stafferd Courty -

File mounto 12 June 13 21874 Charles toutebeir to I received a letter directal to Supl Moiroe Mine in igand what you leaves Lolarion, Jill. not what it is nor can I find out from any one hory and an old robel Miner for our This Section There may be a winder the minetil, it it here, but common telle metil you describe to my what it is and how it is the former any Crete give me a place descriplion of it xif their is ay afil coil seriel you The Brete Cis regulated, and how I am to designate at fine other deed to The imy be some of it as this why abounds with numeral, of difficult thinks

Set me been from you be the Subject engine to stay Une for the Hant OFFICE OF THE

Boston and Colorado Smelting Company.

Black Hawk, Col. June 25 1874

Chas Batchelor Erg. Dear List

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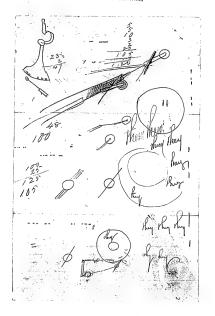
The Tellevision over which we smelt for gold & Delver althings of the world several hundred dollars for gold & Delver do not contain on an average as the ire is received over 1 p. of letterium. They are executed while grant with small particles of bellevil more of pets of theore. There are the grant of the gauges. These one are muchles on smell granulated

sparsely scalling through the gaugus. There will are melted in small grown of the mingle with large grantities of more reffer priviles and the alternam all gres out the stay, in which by the most confine analysis only a most arrivals by the most confine analysis only a most arrivals of most by formand you will anything we have in this look into the day of any has been it do not not any thing we have in this look into

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your birty N.O. Kill

Mr Chus Batchelos Mans Come to hand Enguing it Made a got 3 in by 13/4 - 18h.
Math has tall heaves for the Pith we had heard for their con to tag is about the sing Manne Mall process of the grows for England Manne Manne of the Mann and thele Glized - such as bougging [ON BACK OF PRECEDING PAGE]



Owen Por Sturon June 26 Mer Batchelor received no answer from Maddison I thought I would write you and see if you would be In Mingeing as to put thin In mind that He as Ake would write Me in a short time, I have waited allmost two months for an answer from stim. Out am very anxious to get down there is the reason of I are the leberty to unter you. More if ofou do what -you can in Agand to my comming Down then I will

Do as much for you some line by Brother has spoken along stighty of you serveral times in shis better to me "I'd would like to scrape agreamtine with you if I cample when there blever the know what mo Coliver says about my comming about of the water of hount of the aute if humito kon down tell shim I do "not Chige Me way much my address is But 106 I femain of our Low Dhas st Brown had by and seeined in times

Best Exenten Pettery Combany A. C. and C. C. Pare, also Bround Flint and Spar, My Edison & Merry Gentlem your inquiry of Gesterdy we send how one jan description, we made them the hold Courtie Size, and Think they will hold any kind fluid price 30, per Growand Could Send Gow any grain you Might want upon short notice Reportfully Govers

The Walter Kleetric/Burglar Alarm Co. 14 PARKER BLOCK Wica, A. Y. June 29 Dear Sir- The alarm matter is brewing as you will see by the inclosed We wish you would give us some definite description of the 2d circuit- for the Station Houses, please write by return mail - We shall know after the next-meeting of the Board of Comes what the praspects are for introducing the alarm "Stower autri-

38-0

Walter Kleetric Burglar Alarm Co. GENERAL AGENT 13 & 14 PARKER BLOCK. Uhica, N. D. June 30th 1874

TARdion Eug Tear Sir. Source The Juic Commis have appointed a committee to examine the alarm and is they deen it advisable, to, make necessary avangments for introducing the City alarm - I think there is no doubt whatever but the work will be ordered al-once - The fresident - of Dire Board asked me if a quarantee would be given that no trouble should be given the city regard to the patents owned and operated by others - Please wile by return mail what pasition to take in relation to this ment regiler paper firstbe in newark fore parl- next- week Home & Christing

SHALL REFERRIS President.
LIFTOND REFERRIS TRESSORY.
HIT WORLD REFERRIS TRESSORY.
NEW RIVER'S SALE AND SHOPE.
NEW RIVER'S SALE AND SHOPE.
187

T. a. Even by the is and of terms body, and going among toward for four for four of any, has an electron many for their for theme as the going and towards one their for theme action of an energy for the part you want to be set on the good of the second of the good of the second of the for the second of the for their smaller, milleune the facilitation you have

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W. G. Siffer -.

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Cairo Pilohie Co Il a July 6 1879

Mesers Ediam & Unger

Careat on an improximent in the Cleater Magnetic Engine, which I think prosesses merel enough to render its adoption a probability. It cred he applied with advantage to Scioning Machines and possibly to street rail round ears. Cam quite consessant with the operation of Pages Gaumes. Vaines and several other machines and feel confident that my muchine is a decided improvement on all of them.

" with to dispose of one half of my invention, and if you think proper will can't you a sketch and description of my machine and well all oney low

<u>,</u>

your capatefull, John Clark

E. W. FOSTER, he Pists of Co-operative Newspapers, 148 & 150 WORTH STREET, New York Lely 221874. Mour favor Containing \$ 825 (10 orls receipted hill. The Shall Commence printing the ado't tomorrow. and it will appear in all newspaper (over 300) that we friend during a week from date. Most of these propers will be issued from their offices of Inblication within a week or The days after we fruit our like neach me a week from tours now? at the latest. your that I Motole. Cano Retchie 6.0 Wa July 24/11

Mesers Edismer Munay

Just received and I and conclosed in very hotelish of the min feature in my improvement in the Cectio majustic Engine

The figure is intinided to represent a double contracting Election Magnet, composed of 34 lections 14 in cuch lay of the sho, not besides the curved and pieces. When the my not is extended the excitous open leaving an interval of /18 faminh This gives when closed a stroke of me inch. One Eayor of insulated copper wire is would on these sections of the the muner of electio magnets, but on each alternate section The week is wound in the opposite direction. By a prewline anangement of the Breakfires the current is sent in one direction and the magnet contracts with great force, Them the carried is reversed on each alternate section and the magnet opens its length by the repelling face. The sections clave of soft iron, hollow, slightly consex and concern where they touch when closed, The covering were is not boken at the function of the sections but is looped out so that the marmout of 1/18 inch does not injure it.

1032 -0 2508 50 2557 5

another feature in this arrangement and which I have niver observed in any other, is that when the madaine is in operation, there is no surplus material a dead weight every grain of copper wine a of east in being continual in active operation. I have how husparly wooded given the delaits that you might - better understand the main principle on which the muchine operates, and O feel convinced that it will desilop the full mechanical power of a given battery, and of the day should ever arrive when we cared rollain electricity cheap enough, it would supercede steam as a motive hour. At present however I see no reason why it could not be applied successfully to servir, machines and other machines where safety clearliness be would be more of an object- than cat of running. From your experience in electrical pursuits you should be wible to form a good opinion of the merits of my flaw, and if you think proper I will send a sketch of the muchine in delail.

Tour respectfules

PS. I have resided in West Very mind since the war hard was bow and raised in Paleison hely. The pranofaction etacted the first cetter mile in that place, and my father started what is now colled the Sanfaith Locustin Walls

They

Jos. Moore & Sons,

D. 535 & 637 CHIMA STREET,

Below Green Street,

Philadelphia, July 23 18:4

Men: Edwar / Mirrary Lewark MD

Som Ded.

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Franklin S. Corter

Pantrick, Bunnell & Co.

PRACTICAL TELEGRAPHERS AND ELECTRICIANS,

Mensfetterer and Destor in

Telegraph and Electrical Instruments and Supplies.

22 DEY STRHET, NEW YORK,
And 38 SOUTH FOURTH STREET, PHILADELPHIA.

Manufactor, Now. Old, Old and Old Tiller Birray, Palladelpha.

Slan York fully 2 21874

Rad Elles on Egy.

Fr Sir WE are princed to

talk business on Sead gattery why dow't you come in -Cloud let it chop.

Thouse had more calls than any thing I have in

The House but cumot get them What's matter? also I want Morse Register Yours Resky

Will Send you BBr Cos order

if that will do any good

Partrick, Bunnell & trical Instruments and Supplies. Gents - We muneford from mis Burnell you mild like his hare Regulars at \$29. net we rela-bell today \$3, After is it - pleade lis us them what price and how som withing default - gun can her wo han Fire (5) Regention answer quick = Junp B. Co Must have there 5 on the day

43-0

Thomas A Edison Eag

Ditir

The balance

due on your block is only \$25.

If you will sent us the amount

I will oblige us the will near

turn you your that yellow

for 2 8 haves \$50.

Bry struky

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Secretary

Newark July 25 th 18 y p

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WALTER President



The Walter Blectric Burglar Alarm Co.

GENERAL OFFICE 13 & 14 PARKER BLOCK.

Whica, N. & July 27 1 1874

JA Edson Esq

Dear Sin - I have delayed writing you expecting each day would bring a decision about the City alama, but as yet it - Range = There is no doubt but we shale get the job but - Row soon I cant Day one of the Operated Committee appropriated to attend to the matter has assured me that, the order would be given Doon - that, the order would be given Doon - while of the Clarm 10 days earlier than we did - The affine huntrens for the year had to be Randed in before I will keep your pasted, and when the matter is settled will inform

Yours Truly OSHow? PRACTICAL TELEGRAPHERS AND ELECTRICIANS,

MANUPACTURINE AND DEALERS IN

Felegraph and Electrical Instruments and Supplies,

No. 38 SOUTH FOURTH STREET.

Cheen Manuscry

Af Do Fraul Sa Prank—

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Vater Bennett. Allan All

the last Batchelor

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Much both lines this lege.

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Leonard & Coulta Counsellors at Laws see Broad Street; Navark N. D. O. S. S. 1872

xear Vin

Please call

and see my this two ming, on important the menes,

Yourse

HA Mayue

47- (2)

47-0

TO LOUIS TOUR STORY OF THE PROPERTY OF THE PRO

My dear Edison I returned this Phi 14 not seen Riff but have Cearned what mais go Evolung investigating therefore beg of the To Sie me bifne you sig any more papers, take any honey or go to any Mu place Come The cauce a Harry

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AG Conte for 20 Words.

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See, and Treas.

SILANIE No. 1.

ORD. HARRINGTON,
President,
Preside

J. O. REIFF, Sec. and Treas.	BLANK NO. 1. GLOSESPA	GEO. HARRINGTON, President
· Page	WILD CLOTHA STRENTON, N. J. AND WASHINGTON,	D, C.
Send the following message, 187		
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white	l Ju denforta	Delany.

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BLANDER NO.

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Males Bandon Lallan

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Mr Chas Batchelon

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Maris Demetto & allan

55-0

Leonard & Coultr Counsellers at Saw sec Broad Street Clavarle N.P. CLANDALAN II 1874

Ediconstimuy,

Guis, I have encuera in calleting ten dalears from Brewn with an agreement to feary this balance in instalments. wiz forcer her to themen anears miny werk much paid, Is argualities him of the paction he have in regards to this mution. in such a way that he inter be very glass to our our of is the eary, and weed to purpose: his agreement I min take the steps, his calleding it, I meet my you of this weeks would, Yourseld EAGSACTayue May Edison & Menay Junto

Sight Shift your Day Pato Is Mounted

Sugh of your from them. Sadisfactory we will

be glad to hear from your again

Journ Story Walfernand

*Duckick, *Bonnell & *Co.

PRACTICAL TELEGRAPHERS AND ELECTRICIANS,
MANUFACTURRIES AND DEALERS IN

Telegraph and Electrical Instruments and Supplies,
No. 38 SOUTH FOURTH STREET.

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JEREMIAH QUINLAN, GLASSWARE,

Druggists' Sundries & Rubber Goods,

136 & 138 William Street,

Mr / Deson

Prur

Lied 75 value of the

- you bolles short

Jours 1 15-

Jundan

OFFICE OF

Nos. Moore & Sons,

Nr. 535 & 537 CHIMA CTREET,

Philadelphia, ang Johnson

Colifor Murray Kewark . H.D.

Grown. Cour form is read. Enclosing Coll. Form on Sheurt sold dollars, to cold to be there

one specified colors, so oppy to you and order for same, you credit for same, y an orn, much obliged),

Even Truly Dog Moort Jons.

75-0

Office of

The Walter Electric Burglar Alarm Co.

ROOMS 13 & 14 PARKER BLOCK.

HOWE & AUSTIN, General Agents.

Which, A. J. Aug 11th 1874
Edison Edminay Sular Jon
Enclosed Money order Jon
Jour bill - Jon will please pardon
delay - The Jonin of House Extents
is disastred. The husiness of
will be conducted by myself
from homeefoltJours Truly
AS Howe
Lucceson to House Watustin.

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89: ang 18 paper Delaney 89-D Emery haper. Edison I W Crouch Let of go . 0 Brassey 13 in 60 stubs steel were for Transmitter po tolkand 89-3 Loreng Mill The wan for Teammittees Wilson 14 in 26 stubs steel mie for Zuites Lemphiors 6 in Goobet No 2 3 in HR Gules M. Bradley 10 in H. G.C.

Rollwooks 10 in Bustars Vin 1 Grobat Ho A. flat Grobet A. Groutat Around Grobel H. Sp. Grobes Excluse 11. 1. Fores East Salam. Washington Co. new York. aug. 17. 1874. Chat talchelor Eag 1 Farrill Hobbico Being disappointed in Wilson my lendravors to su you in howark of 190x I send enclosed a rough tracing of Semplear some small pieces on which I would be Teacock like to get your estimate of prices . Paylon You did give on a figure on the pieces of ank g, only that The piece of was slightly different in Keynola form . - Now, i and to represent Wilson a while and a pinion, and Te is the shaft of the former, to be Leavel around to it. and a, b, e, d, Farrill e, is a similar arrangement of parts of larger sign, -Seilet What I would like to know.

In A 4 in Grobat H. A. 5 in flat Grobet 6 in fl. Frontat Tin Around Grobel 7 in He. So. Grobest 5 in flat Grobet 5 in Giblet II . 1 2P. (O.)

Then, will be, your prices for This different parts, it being understood that a and to are to be prince to ogether as g and f' were: but that the bore of both slews is to be perfectly trues so That when the discs have been put on The specolo may be turned on a mandre and plated before being finally secure to the spinel. For CYd, it h, please gin tim price for finished blanks, and also for cutting the teether . The spindles a. f. e, K, please estimate for in both brass and steel: and The same as to the pinions & and h. The numbers of teeth will forbelly be . 24 # 12 for The smaller pair, and 32 to 16 for the larger.

The large while are to-be firmly secured to their shaftsthe pinion we entend now to make, as I explained to you, Ro as to slip off; please maker a separate figure of you can find the lator of fitting the fire on on in this way, as in amountly,

The "american artisan", com taining the first part of an article on "Spiral Brarcing which I thought might interest you; in my haste to get away from new york I forgot to send you the second part - I will reclify the onis-

sion on my return. Please and me your estimate as soon as con- 1872 vinient: 4 oblig fours long

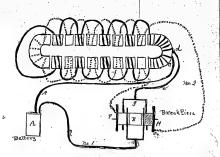
6.1. mae Good.

The Gold and Stock Telegmaph Jo.

Cano Ritchie 60 Wa Aug 13 /874

Mesni Edison & Munay

I find that the repulsive face of permanent (deel) magnets is equal to the attractive face, but that the rule does not hold in regard to the electro-magnet. In a hollow cleder - magnet - Whe refelling face is greater in proportion than in one that is roled It might be adviseable to use two antagonistic magnets and specate by the attracting free only. In electro-magnets especially when large and solid, the celtracting force will often retain the armature can after the circuit is broken. This might be obvioled by the use of the repelling force. My main reliance, house, is the attractive face under The special anaugement, which I contind exceeds other agrangement for producing motive power with a given amount of non and wice. Take aw electro-magnet made of me inch won I foot long and bend into the fam of a horse shoe, cone with two layer of insulated copper wire (2016) and it will Questain 100 by. Two such magnets with opposite poles in contact well Questain 300 lbs. Suppose their anangement to be cut into acctions as to give a stake of 2 inches. This at so strokes her minute would be equal & 300 the recieve /1 of a fort her second or 10 feet for minute equal to /11 Hove Vous . This can be done with a light Battery hower, and could be increased up to the limit of the saturation of the magnet.



A represent the Battey. Be the healthire - The enducting wie no 1. (plain black) is wound right handed . the curent always passes in the same direction and it tendency is to attract. The conducting wine no 2 (distill) is wound left handed, and alternatet attracts and repels, I appealend you are familiar with the nature of Break pieces and can casil, understand kno their operates - The two end flanges, and half of the cylinder are of copper, each flance hein connected with its had cylinder, while the two half Cylinder are opposite to each other. current after traversing the magnet enlarg at a and coming out at d, forks at g . one prong coming in contact with the copper in the rear of the cylinder passes out of the Kange and thence through the magnet, and outs the flange at I theree through the prong to the Batter forming the circuit. It each has revolution this curent is changed from attraction to reputeine jour truly John Clark

202 Broadway NY. Triday Im Batchelor. The cuts are

The electro typers hands Please send me money to pay for them as I am dead broke and cannot at them without. Yhey will cost \$ 1.50 - the electron but I wish you would rend me a few dollars more of you can. In case you show call again - I am never in till bilmen. I soop. I sikknown

95-O

Molfork. Aug 24th)4 Dear Batch' I have been looking for you in today and Lope you will be able to bring in the solution and paper tomorrow- 95-0 Requie some mor Electripome & some mon Sulfate of Effer from to send me two boxes as that is all I ordered.

We sent you ce roll of proper by Express this morning we much home some for we in the morning and will ready to the Belong

Edison on Batch Phase Rind me three ar four Standards for receiving Spools answer Capon

Batch Sind Phila bop of receiving paper today, withroof fail Delang

[TO EDISON & MURRAY]

Engen 28]
Sentlemen

Please and met them
and attended and them also and
one year one is to adjust the
entire personal and the series of the se

97 UNION TELEGRAPH COMPANY DWavren & Their Emery Cloth usmuller Teniock. B I Lohnson

97: Wilson. Ousers. Tool 3 Chambers Lorenz Dove, Soot. inel youre disputet Runz. A Reynolds Gamberlin will oblige hand him this rother M Recynolds Wilson. Rochert Lilling Teniock. 13 F Lohnson

98 Phila ang 31 /1/4 le a Batchelor The instruments. EH Sohmson took a month ago I know perhaps it was sent to some other place 18 2 Johnson Calledy, Rein List Back, Timmerman Kan of Cit Cung 3/1x End with receiving paper also avandes scapping perholecter. Wardien zam "InCome South the thop southing profits Lidry aug 28 Edchon 98- 2 Neynolds 5/2 any Brafs Casting, the Hop tooks

Batch Chave and boy in at once with receiving paper all out Palany 94-1

Balakedin John & Parka you send Perhanden Balanay

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Batchelar Just Caper not yet reve at the sex the stay out they have not enough to last the stay out P Delang 99-5

Dear Six.

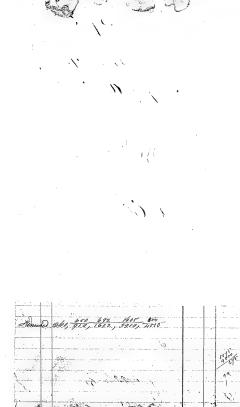
Sea York Diefer 1874

Dear Six.

Si affords me pleasure to inform you that on Buguer of North, or composed for Superson of the Supe

Bathla Sewark Ballo Blean send Ballo Broke for perforating popular for a live my cape when shipped so that he may work for a Delany

100-1





ENGLE & DREW (101)

COAL DEALERS,

OFFICE, No. 14 NORTH PENNSYLVANIA STREET,

Indianapolis, July 24 1874

France 1 "Al"

I suppose that you will be able to call to remembrance the undersigned, as an all school fellow and playmete, and the times we weed to have in the "care" and the many underful things we pluned but did not accomplish in our boylord days you have come to main extent, and him quely improved report old Bur change lifting for formance May success atll com your efforts in filure word. I have see plat newspeper accounts of you late insention which enable one wire to carry for messages, Int- model be gled to see a filler occurret. Your ateyoph printing instrument I have not seen, but are likely to need comething of the kind, as we intend to construct a letegraph line from our office to our good, about me mule in length. Will you give me pome particulars as to its workings or rend what a couple of them will cost un

just started in himens in Telmany lastand are doing very well for new higimen. I moved, francis to that time, I year in the two of the Variable time at this first as Carlies, my chart botter, Jorge being the degent. Fally and mother sugarster and low hothers, Jorge & Trank (to little moment) are now him here. Talker her charp of a Church live while my bother are little still in the cufling of the Candalia" There are your folk now! I outfore some of them are still in Ood Derone bet me hear from you as som as convenient, and let me know about the melniments Yun Old French Millis D'Engle J. A. Edison New Yorkely

102-1

Touis ville & Nashville Rail Road (60)

Thomas & Martini
Thomas & Martini
Thorse & Edision, Eag

Third & Edision;

Thiense Edision;

Comething detailing your latest invention,

Nondering while you will prop.

Jours, very fruly

Jours, very fruly

Toledo Cept 20 74. Of Edison Eg^ Friend al To day I sent by american Expres la, "Charges Said" a Small box of Chlorides, Sulphurets V Valua Dres. The Chlorides are from The Faller Thear from "Relief" of the Copper Stained Chlorides from the Miller Mine - all Oronal + operated by our Co. He are now raising to ton for day of Chloride from the Julier. The Chlorides sent you to day are not as rich as we are now raising, as they were from durface of ground Should it be necessary for more one. you may telegraph Mr B Welles on Suph, at Sult Lake City for a Suck or two. to be but you by Express. - sixing my name to the beligion instead of yours. In uply to your guestions as to ball. Iron There is an endlest Sulpher, Copper TC. amount of them tributary to Salt Lake City

Show as you are though tilling. I sind look for a super from you. and I hope your plan will season from you and I hope you will be something to Comment of ground to Coloros. In Month? I feel when I grow her has been and tall me along with Jah or selection, and tall me along with Jam for ballant. It spring to hear from you down, and with both supports to your look of the super him you have higher the super him you have heard to form my dear him for hugherfully.

JEnynk Septier,4

La Edin Duli, I have matter

Me ench chape non with those parties that nothing bemains but the issuance of the Patent to enable me to consummate everything a make a stark, excepting freshaps some little decails required, which I presume becau arrange satisfacting when the time arrives

Thould like to kan you call in our thursday between eleven a track or not later than one octoor lat I want you to auxure love questions which you can better do than I - Please bear this in mind a it is important you ohnly be here - your hely se it 3 Eden.

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Philosolphia Sop. 2, 1874

Mr. J. J. Eddin

interested in the aspale.

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FULLYON STENEW YORK. between Broadway & Nassau St - 300 ROOMS ((from 50.0!s to \$1.00.per day.)) MATCH OXXXXIOX New York 16 Deme 1874 Teligraph Instrument Masters 260 111 +12 Hard St. Sam a first class Hatch = = maker by trade and a good wortman. for you at low wages. In fittings and all work connected with the Manufac= = turning of Telegraph diretuments you will find me very good. am Hogears of age da mechanic of Africance. "Refer to "American Sample".
0 240 Kent St. that City. also game Refer you to many others.

STATE AND DESCRIPTION OF THE PARTY OF THE PA

By disping me a line at this that the in My will seeine amediate attention Mrg Respectfully Mr B. Sirry

52 Bray -13 th June 74

Meurs Edicin and Murray Breins Than already Unitin to Tite a that I would Whili's our eypeen to them during the middle of next week and consequently hope you will have the Necorate you have under way finished up in time and thoroughly, Tred as this one here has lone objections which I believe you are going to pronde against in future - Chrongst them the armature lever throwing

both ways so as to prevent the reel from making more than one revolution at a time wen if the sender does not propen let go the Key or pull, "amuch larger amount of paper could be but on at a time I think if the "stripper" was privated much lower down - Grange appears to be working along all right and I think we shall get it Have no paper to show the instruct to two of the unportant men who live out There & do business near by here so hope in will get me inda supply room - The two rolls From brought in wendy & I think the solution was not & acty right-but it may have being an acct of the dryness of the paper - Horrabout the deliquement 2 relation? I have got big by lafter tracking to payor & mant come payor & mant come payor & mant come

lven day fra telegram from that Capitalist from Brondence saying when he will be her. to bamine wito ityour hely UB Edson_

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J. a Edwar Eyr

Sir, a meeting of the

Group and will be held

Or the office of the Company

to 52 Provadurary Ny, and the

19th mist at 3 octock P.U.

for the election of officers

and transaction and transaction of business

action of business

your trey

NEWYOK

26th July 74.

. Toledo Triday Spet 4th Thing Elin I cachow you a Circular for a New Kind of post holder . and think if you could get it adopted by the Man Co land there could be made Smething out of ih. I wish you would look it over and then write me, what you think I presume the talent could be bought up for a very Soull Som, compand to its real value if any market could be made In A. M. Telegraph Co. han already had a number pution and their Manager line days it is a great saving & thinks it will prov a duccess. At all earth, after you have given it your attention I wish you to write what in your assimion could be done if you owned it and suggested to the new of the new of it

| 1km York, Sepp. 3/74 | H. Munay!

Have call at 1 Have call at 1 Have call at 20 Have something wing infertant to tell your affecting grue at an early date It remain

Traf Imo G.G. Wagner

128-

,	THE WESTERN UNION TELEGRAPH, COMPAN	V.
Ne	D. H. HUMFORD S. T. T. Erg. Sect. Gen. Sapt., New York: WILLIAM ORTON, Proct.	(M)
Ó	Dated, Mew Torto 3 Reg at 178 Market St., Newark,	N.J.
T.	16 Batchelor Seft 3	ish
	10 V/2 Ward Sr.	-,,-
	Inform Will will not be home	
s	Fought. Come over with Py	no
	Arbetion for domestic before Eleven	_
3	bolock Call at Mestern Union	Ti
	me. Edison	
28	8-Dim 23,557.	

Sear Sh. Angol for a selection of the se

New York bys. 5/14 You will be Kind Enough W replain to, Mr. apple bough that the spools which you send to me oure not for him the Department has more anade for me repar an agreeous hetwen her Edison & me, Juho will Explain to you why they mere to be given to me I not be handed to Our. On untill the whole thing was completed If you have permised any spools to him they can certainly not be the same I and from you. In a note from him to me it appears @ that you was at our office Laterday of told him! You gave

me exerolo for him 2 months ag. How is that? you must remember yourself there mas not one word spokens about giving them to him I had two cores I an armiture made by a machinist at Centre dr. & paid for them any self because I had no time to go to newark & could not an you, I tryed them I got a good reault townten to are you to make another pair hence the note of 2 ains Now you come over 4 cans du one then you go to hor. Q: I tell him the love more that I got the spools from Von feut me in without any writer for it inclosed you will find I'm as wite + my

Answer orad is I judge for yourself. If you from an any spools to applications he share have full man interest of the actions advice and above my best in the affects in the affects of the action to have applicable for med them to have applicable of read from the state of med for med mother your and the sudant of the your and fully quadenty the because of this and and the sudant of this

Washington, Q. C., Sept, 7" 1874 This Even Ex hundry -Why clear Exica - Itan a friend him (a. Mer Miller) our of surplyment aux I thought you might where him in your Choper hi is sover homest homerable and industriony - is also an Inventor has been a printer ophotographer - 26 is riding to do anything whatern and I can reommen him I from have anything to offer him in any of your chafer I will be gratty in debite tryon_ Way Truly oc (Room 118- Jan 070-) What about cluminum?

WEDERING FOR A MILLER THAN THE CONTRACT OF THE

Juste Al. for Told father for the father for the santa me to go and want to got het wither hart of for have got any ling for me to do I will aske Right down as aron or you

E. P. Edison

a telegraph machine. I want to make as acon as I go to Newark one. I my own Invention

130-D

6P. Edwaii

Office of the Scientific American,

New York, Sept. 1 2 1874.

the J. F. Coison

received your of such is with furblish the cut and description if you choose to bear

you are right about the Is fife.

131- O

myork aug 30 Educar Star Sir Mare heer bocate in Washington DC Some Time, but find myself here much looking for a Situation me Conversing with Ball of god Polock Go - who Juggested that I apply to you for a silvention -Hans you amything to The or Suggest - I don't Know that I'm represent inyself as being a nemarkably great mechanical Ginates, Shi if you have any thing in your line phritial you can offer me it decent salary - would perhaps take it in preference to afered Class Open position in the hope that I would carry me out, and keep one ruft Commercial alignaphing from to lease for meply you may have WW. Burhan JO Yoms

Que will out of paper please have some mue sent in first thing moding the new solution if all is right-forit would found he preferable-132-0



OTT & BREWER, BARTEN WARE, Olinton Street, Trenton, N, J. 7/2-3 NO.

Miller Soft 2 394

Die Ser Ser Ser Stary

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Antomatic Telegraph Compa No. 80 BROADWAY Mydear Edism. Laid not Exte get the and primised (100 until tim mon, have can send you 125 by Beacer. Somy when you are amostl. I have nearly completed my Alan for the Egnal de twhen all is arrange) will site Laure by w before proceed furth - May be ready for yo Marday. The lold gent (mix) may or here tomoron. Smiles will wrath you like + Enthusiach fiel you From Very soon - Keep quiet, but an night of fuspeuse is over We will shake the familation. ofting - Steams is sutired too uning

Batchely Rephy

Batchely Place send Baltimore
a supply of perforating proper

And properly perforating proper

Edison on Supply

Over today before three

The field



Dear Edward March me to ask you of you have a Second hand Revolving Down Lunch Screw machine"

Jon can see him on Rearonable terms "

Plo and som only

Rearonable terms "

Blo and Som only

Beard Seeth

Place sud me o supply 134 of Eyande Aflue 1 hrs PM pour allout, PB Delany

135 Backelow Rend a supply of re wiring paper & bottle of glack Both · 13 D . 135-1 Balotely Have you sent Battery Trenton material to OB Dolan Marinart 6 ling of green green for racket line to The Sold of Sold of Start of Parket Sale of Sale of Sold of Start of Spaper Cutter.

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· Santerson Reynolds

apparatus all Dove. make sund paso H2 S Corses.

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136 Sulfrigg Will in feet for Parer Certilion Pall 147 18 feet for Phop look. Singkon 6 lbs 14, 14, 14 for Detection took. Tagan. 05 - 116 foreword of Lanterson. 10- 46 Buglher Wald 19/8 fteel Throat I Can of all Jumerman. 4 in A Old file also please galeono of glass stoppened bottle . I am arranging of conting in latinam forse a lystan of analysis of grown as pericus Kuow to to efficient + c.car. do was the however Robert Spice.

Pranklin B. Carter.

pantrick, Bunnell &

PRACTICAL TELEGRAPHERS AND ELECTRICIANS,

Telegraph and Electrical Instruments and Supplies, 22 DEY STREET, NEW YORK, And 38 SOUTH FOURTH STREET, PHILADELPHIA.

Manufactory, Nos. 614, 616 and 618 Filbert Street

Now York, Seft 22-1874 Edison & marray 3

Switchman I have bill of 14.58 against Damielie Tie Co of 18 2 Braduray AN.
They write is to Charge the pains to ap of Edison & Murray.
Is this consent and about Lentlemen

we continue to let them Lave

Very Rosepe of ally Jours Partick Bumill res for E Engles

Please dand Luffly herforder

Selection to here today or at what time per 139-0.

Gotton Sept 16 1 Story Source out of the old augunit frechs shown boy I want to use it

139

Leonard & Coults Counsellors at Laws 800 Broud Street Newark, NIXI MA 213 Consonsumy Guis, we have succeased (19,) with strong promises to pay the bolower in a few days, thus is will be buin is main't if we should pracion in mater we may accuracy than he is new good, and will unify you of the plagues be main, () The Ruis in the District Court was Riagrotulu he painters installment, with unusumming which he should kery aunihur

Loon, Grunet Leonardlevaer, Hayru

(112)

Leonard & Coults Counsellor at:Law soo Bread Strats Newark,NPSAss 29

Densu:

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Hattayn 142-Leonauthories

The Gold and Stock Telegraph Co. Executive Offices, No. 61 Broadway, New York. New York, Sep 29 The ferral wides you were alm those "park" gon have on have of her here there of same of he high there is not in I will pice you

142-3

New york Sept 30

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James Partriol

Jerry W. Branal

Franklis S. Costa

非明记人 場unell 衣 do. Practical telegraphers and electricians,

Tolegraph and Electrical Instruments and Supplies,
22 DHY STREBT, NEW YORK,
And 38 SOUTH FOURTH STREET, PHILADELPHIA.

TAEdian Esq. Qolf, Och 3 ch 1874 Co Vir

Can Haw Jund out for row the Kind of office when to be used by the Wald for fit of the pay the rough of it?
With to Just the a court of the Wald the Can bent the past on

offin Wires Very Respectfully Frank Edwin Cagles.

143-(2)

Backelar Please sent supply reviewing Paper to The toplay

Pactrick, Summell & Se Co.

PRACTICAL TELEGRAPHERS AND ELECTRICIANS,

Telegraph and Electrical Instruments and Supplies,
No. 38 SOUTH FOURTH STREET.

Philadelphia, ON 5- 1874-A Edison En Nurakn. J. Dear Buch -Jours Fread. We haven't recordy order for Sounders and Eagles, Battery, but will deliver it to you from here or My. of the order has good there) at the Earliest possible moment and at the same time This absence and send you check in full so wer can take a frush start. Just me with our field ourselves a little rushes on those two article Egles Flients' but Expect a supply for all Semando this week -Telling several unusually layer orders present no so that all are friends have had to be easy with my but we Male now be when to fix Mup ricely Ash to day on Som In - 1 Denn got

144

1278 -1161 -1144.+ 580 1165-11.15+ 635-1166-11.18.+ 1287-1289-761+ 1169-1119+ 1170. 781+ 1171-1120+ 1037+ 1121+ 1295 1124+ 1173 -1298 10444 1125+ 1303 1053+ 1175-1126+ 1305 1060+ 1176-1129 1306 1071:+ 1177-10.75+ 1178-1131+ 1307 1134+ 1309 10807 1180-10824 1137+ 1181 -1083+ 1142+ 1182-1084.4 1143+ 1183 -1089+ 11454 1184-1105-1146+ 1090 1186-1147 1091-1187 -1149+ 1203 1092+ 1096+ 1206-1151+ 1154+ 10974 1098+ 1150-+ 12-111-1156 + 1249-1099-4 1154+ 11104 1276 1160+ 1112 1277 145-2 1113.

Och 10 perfecating to Trenton + notify him of Missourch PB Delany, 146-2 Bach "Please send supply performed people of Cyamode to Theles today monty him when thefeel P B D

146

147 The Hold and Stock Telegraph New York you hu food for I spoke miller of whom byon the other day -I understand he is a hauldi good work man -Willage both Phelps Kenny Lane, R Sine bin work if Carser we any to span Amith the fish just ordered Buelki Jerill Seilet Exturing Cummundo Lorger handding 147-0 Frage Grand Ila St. Is Tran have for Sampheor hong, freet steel . for the York filet I Can of Oil. Byelher, Is in Drill file Filling. I Can of Or Carser. II in Recut Bast of Cummingo. 11 ., LI Traine for I key Por Julet 3 cans of all. Thank 12 in Keust file. Twill Holl 1/8 O.M. for Clark's Printer.

New York. Ochola 124 1874 Mr. J. A. Slica Enclosed You will find a sample of & ryand I ward buttons In Telegram with at the rate lay \$ 6. 500 fer hundret present without Engraving an it \$ 5.00 for 100. I have bite daning for Burglars Alaon for 200 a price with Engraving on it. I remain reefectfully Charles Jest 911 Gast 10 4 Sheet Engraves to Lurier in Gray.

147

Price of Oko de Residence Susticement wed by P. Ularle Thook Exchange \$ 65. Priorgeof Private Line Winter with Key board come so used in Cleaning House my and 200 gain in use \$120 each.

Tuces by Edison & Janando Noke, 147-0

Court Of 18 4 pm Mount M. bliggraphed from C. a. Edison, aching if he posted by a four this week and I have no I capit to go each his week and if Edison is a Hisand or it hail! be then the starte, I will ever " There were it of this place motify me by a Aughore Cong Warman In your gratery 148-1 Brudlay. Returned gri Os Tilling I'lles I'll RM, good for End, Machine. Colling of below I'll RM, good for End, Machine.

148

Bladly . 11 in Recut-fille Bast !-Morkhart I/selb RM. flood, for Index, Machine. 7 Grown Syrs, Sleven Institulo, Hoboken,

149-0

My Reconcech of NEW Back Oct H 18/11 Den Sir Sear Sur Brand of Song by Bry Bry And they by Brands trying to get it off yesterday but was unable to a complish of the Platiman Dark Came with life M. Monde Mr alter a ready made our Would take a yester make our so thought best tocked this - Triend harray

I fair the instruments
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they are working all right or far, but he coult tell
ander about them yet as
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much at the time
I shall let you know
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about ither speods.

(asp, young glaguer
149-3

Cet 12 14

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(Haptil Your G.G. VagnerOffice of Polmes, Rooth & Anydens,

Sheet Brass, Copper, German Silver, Plated Metal, Brass and Copper Wire, Rivets and Burs, Tubing, Jack Chain, Lamp Burners and Trimmings, Silver Plated Ware, &c., &c.

No. 49 CHAMBERS STREET.

Now Bork, Oct 16 1874

Edison Valleray Jouts.

You omitted to feet

you nave on Enclosed Hote and as it is for your to though have to on to thous how me can't in parenter of the Return to with your ludows.

The credit.

How Horto Haydou

\$ 171 of Je Ruft Sig

150-2

to mr Edwards, Draw Son

I, have gust heard the Mens, that you have serioed a , Palent for your now Interment, and wish you all the good look you deserve, you will most likly recollect my, as I and Prince, unter your order made the first nepair; at the Stoke Gold Comp and afterwarts worked for Mr Ott. at present I, work for Mr Dily Mashing of I greene It me have all the tools neverary, and are prepared if you should feel in lined, to give your Intrument on Contrait, to finish them in the Seat Montimunship at a reasonible Price, and to your intire satisfaction, should you feel inclined to give us a trial race of m Dilg. I remain yours 41 Greene Shiet Seeper Gelly S. G. Souis Show Kom Josis Monther 151-1

> lo Kespiotfelly Jacob Arg 151-2 42 marin &



Cot 5th 18/4 Mesors Oclieon & M bouse allow mo to informe you of my Remone to the I am now ready for Work to let it come & much Oblige yours)

15-2-1

Pantrick, Bunnell & PRACTICAL TELEGRAPHERS AND ELECTRICIANS.

Telegraph and Electrical Instruments and Supplies, 22 DEY STREET, NEW YORK, And 38 SOUTH FOURTH STREET, PHILADELPHIA.

JA Edison En York, Och 8"

Or S'm hourd eike you to call in about som

battery Matters 70 Very Rexhe Tfully Yours

Miladelphia Coti. 16/₂₁,

Ox Edison,

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you are in proved the food
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you are in proved that
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Therefore have at The
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Och 17 Baltimore mid Edison as Backelon perforating paper am out answer please send supply of Cyamide at once Capon Och 20/7/4 Balcheller Have you any Jimes far the laye size cleckropoint Battery Sme mided at Baltime PB.D. cty Och 20 Batcheler Please ship at once 25 large Zines to Ballot Zso anderiony to Avantu also to of Corner to Treaton 153.3

Ba Och 22

Glas by furt programming in

PB Deliney
1547

Porm 48.

The Gold and Stock Telegraph Co.

, No. 61 Broadway, New York.

New York, Oct 22 1874

Edison & Murray

Mean funish us with On hundred upper feel dogs for new Style hunings of slood Trusters chylorom upe

> Jam Sauly Sust Supe

> > 154-2

Louis Merker & Wow W. S. 44. Franklings Maker

Meas Edison Or Batch Dalis mo 27" Ook

hards of two old perforators lash
meek and two transmitters one
small tone box relay yesterday.

The small relay needs halaning int could
Please return one perforation one transmitter
also the box relay, ko on asposible

Uspy yours

W. J. Japen

Saltimore.

Mi Chai Balchelo Stamp ready for you abought rest Treating abought 12 oclock & Bring along that is Phuls orth How I blev the Ballance of the Old Bill

My. och 26 dyy Fried Edison I met Dr Beard 5-3. West 38 2 Stry City- today and called his altention to your Inductorin He asked whatyou claimed for it a said that he would be pleased to do any thing for you he could, Should particularly like to have you either come in person or send some compelied one with an

withmount that you wight both-schange news - I have Known him a long while as he is deta writing (publishing) specially on the meatour of Disease by Electricity a devoting hunself to Original research in the matter I commend him to you - Hecould also place many of your makent among his patient & acertificate from him would be a great value ash is an acknowledged authority on my maly clean,

Bunnell & 22 DEY STREET, NEW YORK, And 38 SOUTH FOURTH STREET, PHILADELPHIA. Now York, Oct 90 Edison & murray What is lowest You can send this two? Registers morse compale including weights to Exception and how soon can 156- (5)

Nofre you are progressing saliefactorily with plating Robertson a new Recorder as we should not have them any too Room.

On fact I can get a "Circuit" to work on the Tire alarm today - 20 odd miles long - It is

promised one whenever I want it - with a proposed of the city adopting it if pales factory in the new Originals - This is confidentials less severe of from head quarters - AN Brown when that , Rhostat is that he promised me rome time since? Backelin ? Newark If Och 3/ Place send box Receiving paper to Capen Balto P.B.D.

A, W. COLTON, Prosident.

D. R. AUSTIN, Secretary.

Coledo-Ctah Silver Mining and Smelting Company.

Incorporated April 24th, 1872. Principal Office, Teledo, Ohio,

Superintendent's Office, Salt Lake Gily, Oct 30

I A Edison Esp

Dear Sir

of I I Page I send you by Express to clay. 50 th of Isoles ore also about 80 ths Officernation District, you will know he are by the marks on duster one. I abide A come the other moutes the I of he to Singlan in new duster.

C. In Naskice

In a Fellow Moth, Sharewards it is 874.

Some of Colicion & Merray

Southern Stewark. A. J.

Sentlem Stewark. A. J.

Southern interest to show the Man Melegraphing Machines to down the manther sollier to have the meather sollier by rehear meatly when superity Man superity

Men superity Men in preserve meatly while the Melegraphic of the have the meatly when superity

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Theto The set 34 To day I have letter from Harkell of Salt Jake, Saying he had don't go The latter is Falma One, and is a fair amage of Bingham Kanyon Ones, I have mitten Them to dend you 25 founds each of Julian and Part Jordan, as there are of the lowest grade Known, and will gon your plan a good test, get I ambe profer, a Can load to test it I think you can get all the one you may want of Mebiter Levis + a 18 Jayre St New York , as they are heavy shiffers of What ones for induction. On my return I saw Mr belofielse here (of MM); and his snow or less familiar with different plans of reductions, the days In has seen many plans, work will on a small scale, but not practicable on large . Int days if you have Something soliable, then

in our immense fortune in it by going to What I have been frank with you whole you what others they only with a how of letting you have the Opinion of former attempts. Markatell writer me, he has no field yet I place no confidence in him as to this . - Only that others have bried or failed but whether they had your process o not I count day, but think not I want to be Safe, - don't would to Square Citta your Money on Mine, where the general tone of this as you will see in more of Cantion & hope, then of doubt In your ability As soon as the our sauches you and you have togated it, I work you to winter me or have The Trown with on to what your success is Funily all right With superty to all Sousann Mon taly -

Backelan More Please to Phase this Om only enough talash the day out PB Delany 159-1

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157-2

[TO EDISON & MURRAY]



Recording MD (1944)

Recording popularity

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were him of thepment

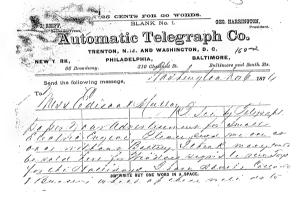
160-1

Students Suk Recorder, please tell me what is the price per mile & period grades

1. 2. 3. 3. 3. 4. 3. 28.

P.S. I want to get from your

Henry Middleton



oun it der me hareden in a figure than I have been make the Dan advised part him Dan advised partition of the large transfer of the hare beautiful as parable, Diele hare beautiful as the diele as a superior of the diele as a superior

24 mystle are. -1

nov. 2. 74.

Dear Sir,

I find from the Elmore, this morning, that he has not been able to get his account settled by the burbared promises of payment but have made several promises of payment but have not fullfilled them. Please see that he is paid this week; as I am placed in rather an unpleasant position about the matter; being as good as hable for the amount.

maternations faithfully, Robbi Anice

Bradly Jim "7 wine for Shepitato.
Reynolds 3 " 27 " Glark's Limber.
Bradly 12 " Baff Ramid Shep the

Ellen. 5 . Half Round . S.c. Filling. 2/2lbs 918 O Steel for Clarks & . 21/4 . 8/4 0 Stone. To John N Elmone 1 & Pilling. Ocht. 25. To Mids Eunming. Stewart Och S. Dove. Smith. 161-3 Pilling. 1-26 1/8 B Trong Shop tools 176 le 12 in O From 114 le 3/16 Otron Reynolds 3 in Grobet A 24 Dove And los of 14 x ist theet still for 6 1 Printer Bridly Fin "I wire for Shop tools. Black's Linder.

James Partrick.

Pantrick, Bunnell & Co.

PRACTICAL TELEGRAPHERS AND ELECTRICIANS,
Munificturers and Dealers in Telegraph and Electrical Instruments and Supplies,

22 DEY STREET, NEW YORK,

And 38 SOUTH FOURTH STREET, PHILADELPHIA. Manufactory, Nos. 014, 616 and 618 Filbert Street, Philad-

Now York, 4~

to us at 22 Day st soon

as fassible two Registers Complete with bill

y Rochelfully Yours Particol Bunnell & Co her E Eagles

161-2

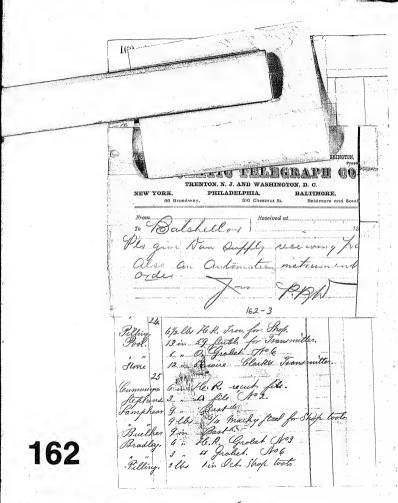
WM. JACOBUS, PRACTICAL

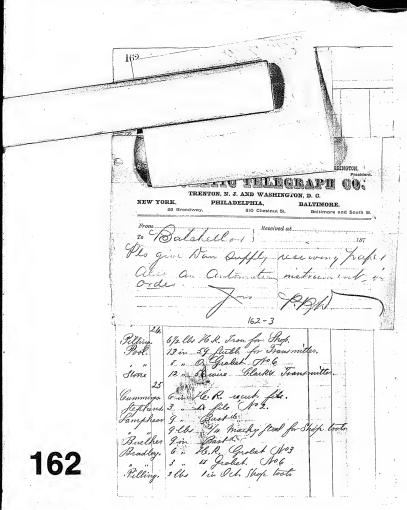
Plumber & Gas Fitter, PROMPT ATTENTION PART TO

ALL ORDERS FROM CITY OR COUNTRY, NO. 7 CEDAR STREET,

NEWARK, N. J. #60" Jobbing Executed with Neatness and Dispatch, 161-47 AND AT THE LOWEST RATIO,

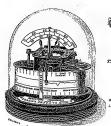
162 The Preschen Electric Manufactuning Company. F. 154 FOURTH AFE., Car. 14th St. Now York, Nov 4 1874 An Evino am about to contract a machine to be made in large sumbers and sides this an NEW muansly & permanent average of \$ 1000 ic po manths. I have heard of your ability to and if consissient, please call here at your contiest can visionce if you chould thin it to search al ben. 162-1 Luis truscher, 6/2 lbs Hb K. Iron for Shop. 13 in 59 Juebl, for Transmiller. 12 m Straine Clarker Transmitte on He. R. went file. Stephens 3 " A file No & 9 lbs 1/4 machy fleet for Shop book H.R. Grobet Wo3 4 Grobet. No6 Pilling, 2 lbs I'm Och Shop tools





[TO EDISON & MURRAY]

Jam entirely
out of pater
Please send some
to 91- & iberty St for
me + 2 will take 1- to 52



The Recording Steam Bange Co.

OF NEW YORK

SOLE MANUFACTURERS, UNDER EDSON'S PATENTS, OF

Tear and Pressure Absorbera, Locomoreva, Test, Steam

REVOLUTION COUNTERS, THERMOMETERS, ETC.

91 LIBRITY STREET

M. B. EDSON, Prosident,

Now Yark, How 9 1874

Call he is a day you will call he is a day or two I will to get you in reference to and estimate of some little in portained for what day man of some for those paper portained or charts — I have to your hands — I have the Wound have the way to be a charts — I have the Wound had

163-1

James Partrick.

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Franklin S. Carter.

Pagirick, Bunnell & Co.

PRACTICAL TELEGRAPHERS AND ELECTRICIANS,

22 DHY STREET, NEW YORK,
And 38 SOUTH FOURTH STREET, PHILADELPHIA.

And 38 SOUTH FOURTH STREET, PHILADELPHIA.

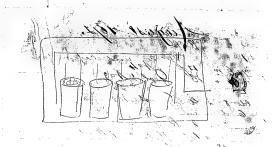
Manufactory, Nos. 614, 616 and 618 Filhert Street, Philadelphia.

Slaw Yak, Ar 94 189 Edison F Murray 10 712 Ward Rh Gevark HJ.

Please deliver at 22 Suf at M (fork Turo more) Registers comflete. I was are us a great hurry for them Well your please deliver them I porn as preside Teny Respectfully Your Mortrick Francell To per & Engles

163-2

Batchellan RM Batchellus Phila reports that Caper fust received is receiving paper instead of perforating. If mitate made please this him some perfuday paper by express this Om without PBD Edism Dr you mean the paper sent to be used on perforators & is into the sholer paper I have tried it of find the punches mall the Machinis will have to be given longer movement in when to cut it claim to the total course to the should [ON BACK OF PRECEDING PAGE]



25 CENTS FOR 20 WORDS.

J. C. REIFF,

BLANK No. 2.

GEO. HARRINGTON.

TECHATIC FELEGRAPH CO.

NEW YORK,

PHILADELPHIA.

BALTIMODE

To Date h

Baltimore and S

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166-2

The Areschey Plectric Manufactuging Company. 154 FOURTH AVE., Cor. 14th St. Now York, Nov. 13. 187 4 Edison & mmay Gent lemen for zum, please cull early do as I may get this Magneto - St. machine where ares than ? 25 CENTS FOR 20 WORDS BLANK No. 1. J. C. REIFF. TRENTON, N. J. AND WASHINGTON, D. C. 66 Broadway, Baltimore and South St Send the following message, Batchelan paper by Express this

193 Greenwich St. N. J. City. . Nor. 12. 74. Dear Sir, oblige 14 = Elevora 2 callod as The Offices of The automatio Co this manning in pose. He and found wither to collect the amount of his bill on to ger amp definite arrangement for it's may ment m: Klimore wishes me say that he must request you to selle his account without any more delay. do us for the fly Rob! Sprice Thomas a. Raison Esque.

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Loonard & Coults
Counsellas at Law;
see Broad Stact.
Award N.D. W. M. 1872/
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PRACTICAL TELEGRAPHERS AND ELECTRICIANS, Manufacturers and Dealers in

TELEGRAPH AND ELECTRICAL INSTRUMENTS AND SUPPLIES. 38 S. FOURTH ST., PHILA. and 22 DEY ST., NEW YORK.

Philadelphia, Nov 11 1876

No. 18. September 15, 1874.

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PRACTICAL TELEGRAPHERS AND ELECTRICIANS,
Telegraph and Secreted Lawrences and Supplies.

20 DETY STREET, N. DEVY YORK,

And as SOUTH FOURTH STREET, PHILOLIPHA.

**Laundwerze, N. Old, Gid and Gib Filler Street, Briddinghia.

Eddyn Y Murray Sow York, Nor II 1874

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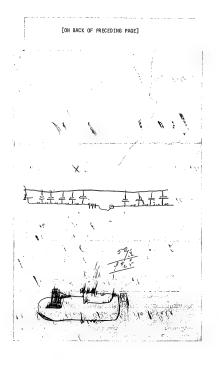
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Charleston Nov. 14th

Mefer Edison of Surray Gentlemen I received only their morning the 10 rolls of paper sent by express, & enclose you in this letter a

O.O. Order for \$0.60 (the ame. stated in good wild). You do not give me in you letter of there, y' any supermater as to whether a galacuments.

would be effected if placed near a boy of your accidence colds when a current is passing through the latter. 170-1

If I determine to order

The Brescher Klectric Manufacturing Company.

Elison & Munay

I have a lat of work to be done soon - One Electro nector

much be down by the 1" of dec. _ If you can and will do it call for it and do not dis appoint,

or let me know the contrary do that I can provide

Bruch

a box of your Coils I will write Repetpely Story Middleton S'5 East Batter Charleston So. Ca.

170

25 CENTS FOR 20 WORDS.

BLANK No 2 J. C. REIFF,

DITAMOTUA

TRENTON, N. J. AND WASHINGTON, D. C. PHILADELPHIA, BALTIMORE, NEW YORK, 310 Chestnut St. Baltimore and South St on Brondway.

From Washington Received at Newark Nov 20 1230 PM To Batch

Please und the twenty few Ceps to Balto by Bright today seen Shepartick it should be there within two as there days yes put spring on transmitter (B.S.

Edison

Supply of kerforating paper & auto gland

IN ORDER to avoid DETENTION of Draymen, SHIPPERS are

UP this BILL OF LADING and INVOICE attached

25 CENTS FOR 20 WORDS.

J. C. RRIFF.

BLANK No 2.

GEO, HARRINGTON

AUTOMATIC TELEGRAPH CO.

NEW YORK BURNESS, A. S. AND WASHINGTON, D. C.

PRILADELPHIA.

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THE W	ESTERN UNION	PELEGRAPH COMPANY.
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Automatic Telegraph Company,

SUPERINTENDENT'S OFFICE,

New York 200 24 1 1874

My Dear Edison

The have arranged for

Perforating Paper - Pelense dud

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(173)

C. REIFF,

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EO. HARRINGTON.

AUTOMARIO TELEGRAPH CO.

NEW YORK,	PHILADELPHIA, ay, 810 Chestnut St.	BALTIMORE, Bultimore and South St
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ď	FORM No. 24.
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	UNITED BAIL BOADS OF NEW JERSEY DIVISION.
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[TO EDISON & MURRAY]



J. C. REIPE .

25 CENTS FOR 20 WORDS.

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GEO. HARRINGTON,

AUTOMATIC TRENTON, N. J. AND WASHINGTON, D. C.

NEW YORK.

PHILADELPHIA.

BALTIMORE.

66 Broadway, 310 Chestnut St From Balt Received at

To Mu Batchelon

Bajo & barrel containing bettery

Capon

PHILA. NOV. 2BTH. 74.

EDISON & UNGER,

GENTLEMEN.

PLEASE SEND ME A COPY OF YOUR PAMPHLET CON-TAINING INSTRUCTIONS AS TO THE WORKING & REPAIRING YOUR GOLD & STOCK PRINTERS a næLise,

Ans Balch

YOURS RESPT! Y W. H. SKERRETE .

174-2

25 CENTS FOR 20 WORDS.

GEO. HARRINGTON.

BLANK No 2. TELEGRAPH

TRENTON, N. J. AND WASHINGTON, D. C.

EW YORK.

C. REIFF,

PHILADELPHIA.

BALTIMORE.

66 Broadway, 310 Chestnut St. Received at 18

25 CENTS FOR 20 WORDS.

J. C. REIFF, . Sec. and Trens. BLANK No 2.

GEO. HARRINGTON

AUTOMATIC TELEGRAPH CO.

TRENTON, N. J. AND WASHINGTON, D. C.

NEW YORK.

OB Broadway.

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To Battheler

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	175-2 /1/h 1/) (For the Company.
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New York Dec 5th 18/4

Messon Edison & Murrey

Gentlemen 1

Undersigned have been working for Alexander to le and am at persent out of work. I have feen to see your advectionment in to days been hope late, should gen have need anymore help place note for me as I can and afond he page four to become and not afond he page four to become and not get the year my respectfully.

Albert Whether William delices by Forogeth St. New York and I Tongth St. New York and I have Berg.

A.B. My salery was 3 dollars a day but I doll supper that now 175-3

25 CENTS FOR 20 WORDS.

J. C. REIFF.

BLANK No 2. GEO. HARRINGTON,

NGTON,

AUTOMATIO PELEGRAPH CO.

TRENTON, N. J. AND WASHINGTON, D. C.

NEW YORK, A PHILADELPHIA,

BALTIMORE,

To Patchelor

Received as Nowark N.S.

Cleare send to thila by express toda sine a supply of relieving and of Our prating people telegraph when

25 CENTS FOR 20 WORDS.

J. C. REIFF.

BLANK No 2

GEO. HARRINGTON.

TRENTON, N. J. AND WASHINGTON, D. C.

NEW YORK. PHILADELPHIA. 66 Brondway,

310 Chestnut St.

PBA

BALTIMORE. Baltimore and South St

10 Batch

Received at Meur

176-2

19

Clease Cut this afternoon

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Plainfield Dec 5 Muss. Eduson & Munay

Nel 14

Se Sandardigario & Bak . . . and sum Mour advertisement in Attak dan of today, bego bave I done some work

for you in the Commencens of the Summer, some and made Condencers East spring. If God Can give me endlowment

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176

Gold & Stock

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PENNSYLVANIA RAIL ROAD CO.
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6. In pursuing of a law of Now Jersey, passed March 18th, 18XX, antherising Balletead Companies to mint their exposurant temporary of the company and the company are not, in any case, to be liable for more than a deltar a pound for the loss
5. In the case of goods received for transportation from connecting most contact of the conta

177

OFFICE OF MA Eddon THE RECORDING STEAM GAUGE COMPANY OF NEW YORK. 91 LIBERTY STREET. New York, Dec 7th 1874 mely Edison & murray 2 f. Yours of 3 went was duly rec - Please make and deliver for me as follows 300 of the built Brafitted, referred to - also the following article, of which you have the sample - accepte your letter of anyunt or Lept last 150 pieces ED 2185 for 100 Do De @ 225- for 100 (use your /8 tap) 150 Do 5 00 2.25 / 100 I find of this, 150 @ 8,50 pe 100 (deceit tap herewith) Please have the throat, carofully cut and the wante well finished as it is for conspicuous places on my Gauges - I hope you can let me have the same very soon Your Truly M.B. Eddon P.S. If you do not bring them in please send hancel by Lawshe & Extent.

W. D. Williams

WHERE ANY REPLY SHOULD BE SENT.

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Pirot Wiros 177-4

The Gold & Stock Telegraph Co. Order No. 30

Supply Department.

No. 61 Broadway,

New York, Ale ID 1874

To Edwar Munay Rewart N.J.

Fifty more Universal Stad privile

Conting to my convention with. Open too week ago -

two hundred dallaw per week on

and deliver to Supply Deflece

Your July, Gentledlo May

(Please send DUPLICATE invoices.)

25 CENTS FOR 20 WORDS.

Sec. and Treas.

BLANK No. 2.

TRENTON, N. J. AND WASHINGTON, D. C. NEW YORK, PHILADELPHIA, BALTIMORE, 66 Brondway, 310 Chestnut St Baltimore and South St.

25 CENTS FOR 20 WORDS.

BLANK No. 2

TRENTON, N. J. AND WASHINGTON, D. C. PHILADELPHIA.

BALTIMORE, NEW YORK, 810 Chestnut St. 66 Broadway,

TTO CHARLES BATCHELOR]



J. C. REIFF, ·

GEO, HARRINGTON,

Soc. and Treas. AUTOMATIC PILBERAPT GO.

NEW YORK, PHILADELPHIA.

66 Broadway, Sio Chestnut St. Baltimore and South S

To Batchelor Received at Mariank of B

Sand capen Balto ruffly receiving

Mest Edisin . mmg

The numbers for the Fire alam boxes for City opry, are as

771. 773. 795

796 869. 895.

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My 12 th per) 4 Part

IN OLDER to evoid DETERTION of Draymon, SHIPPERS are requested to FILLU UP this BILL OF LADING and INVOICE attached to Fillu UP this BILL OF LADING and INVOICE attached to Fillu UP this BILL OF LADING and INVOICE attached to Fillu UP this BILL OF LADING and INVOICE attached to Fillu UP this BILL OF LADING and INVOICE attached to Fillu UP this BILL OF LADING and INVOICE attached to Fillu UP this BILL OF LADING and INVOICE attached to Fillu UP this BILL OF LADING AND THE BILL OF

ED BALL DOANG OF STEP STEEDS DIVERSORY.

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193

Please for the Tobile Nan Wint frager - Stor most have the marker one of formand and some of Justin latter flux

WILSON HAWKSWORTH, ELLISON'& CO.,

Manufacturers of STEEL, STEEL WIRE & Experters of CUTLERY,

sheffield, england, Warehouse, 72 John Street,

warenouse, 72 John Suree

CHARLES HUGILL,

Sow York Dec 5 4 1874
Was Celevant Menny
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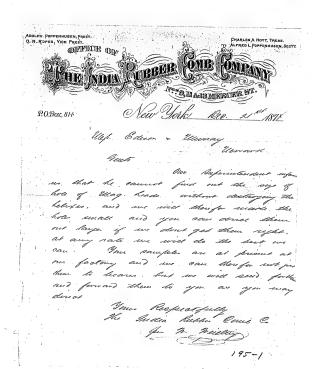
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Chas Batchelor Supt.)

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 December 18-18/4.

M.C. Batchelor.

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	25 CENTS FOR 20 WORDS.	
	J. O. REIFF, BLANK No. 2. Sec. and Treas.	GEO. HARRINGTON, President.
	<u>AUTOMATIC TELEGRA</u>	le (0.
	TRENTON, N. J. AND WASHINGTON, I NEW YORK. PHILADELPHIA. BA	
	NEW YORK, PHILADELPHIA, BA. 88 Broadway, 810 Chestnut St.	Baltimore and South St.
<u> </u>	. From Nearly ask. Received ut N.	Lewarh N.b.
	From Matchelan Jark necessary of Can gow send me	ewark Ap. 187 fifty
	Can you send me	fifty.
	To Batchila	fifty.

195

OFFICE OF

EUGENE F. PHILLIPS

20 Conduit Street.

Providence, R. I., September 15, 1874.

Current manners

I take pleasure in calling your attention to my PATENT FINISHED INSULATED TELEGRAPH WIRE. I claim this to be the heat brailed wire manufactured, and I believe it is universally acknowledged so throughout the country, by all the large Telegraph Companies and Telegraph Supply dealers. Its points of superiority are:

- 1st. Its excellence of outside finish.
- 2d. The toughness of the Patent Compound with which the braid is saturated.
- 3d. By its polished outside finish, its adaptibility for shedding rain and sleet.

4th. On account of the nature of the compound, it can be laid directly against any wall or paper without staining or greasing it, which cannot be said of any other paraffine wire.

It is the only braided wire made, which, after it has been up for any length of time will, with ordinary dusting like any piece of polished furniture, look bright and fresh as when first put up. All other wire, regardless of its color, when first put up/will in a short time become dusty and dirt color, making an unsightly thing in an office, where mine with its bellilant, fresh color is an ornament.

The toughness of the compound, which also makes it capable of taking this splendid polish, makes it the *most durable* brinded wire made. It is especially desirable for nut-door use, as the rain manner beat the compound of, and its smooth surface prevents the snow and select from sicking to it.

cannot neat the compound off, and its smooth surface prevents the snow and sleet from sticking to it.

A grease strenk along the wall or paper behind the wire running into a nicely fitted up Broker's
office, does not make him feel—well, good natured. This can he avoided by using this wire.

I also make it in cables of any number of conductors at the regular price for a single wire.

It is finished in any desirable color or plaids, with a light or heavy insulation, at the following prices:

Each covered with three heavy linen braids, and well saturated. For outside use,

to per cent, discount in quantities not less than to lb 15 " " " " " " zo lb A liberal discount for larger orders,

Patented November 18, 1873.

196-1

32 cts. per foot.

I also manificative plain cotton or linen covered wire, or will assumite the braid of the same with paraffine, hisblanker or paint. This may be covered with a wind and braid outside, or two braids, or a single braid as the customer may wish.

This if upplied, it rainbed amount on the outside, and I claim and believe is as good as any trainbed order mark, notice of any Protest Franker.

So to be a supplied to the same a basing fines.

So 75 | 5, price per fine.

So 75 | 5, p

I also manufacture a Rubber Covered Wire, which will not grow stiff and crack off in cold weather, or grow soft in the hottest weather.

weather, or grow soft in the hottest weather.

By my process of putting this rubber on, the wire will be found in the exact centre every time.

After the rubber is put on it is vulcanized, and then covered on the outside with a braid and finished,
and is suitable for under ground, under water, or any outside or other purposes.

No. Boosto & Storyck Groups.

Storycto per fort.

Storycto per for

I have also just put in new and the most approved machinery, for the purpose of making Magnet Wires, and feel satisfied that I can furnish as good as any to be had in the market, at the following prices:

MAGNET WIRES.

Benwie & Shape's Gauge.
EITHER PLAIN, PAINTED, OR PARAFFINED.

| Na. | Cases Ownerd. | Na. | Cases Ownerd. | Six Ownerd.

an Distant Wires

Juntlemen

No de art males a have fixible with Secretaryon wich

son from Ordent color or Provided involved, in large quantities I mile by

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June triby son of the

I also manufacture a PATENT ELECTRIC CORD, which is pronounced by all to be the most flexible of any in the market, and the best suited of any made for Switch Boards, Medical Batteries, &c.

Silk corered, price per foot, So of | Cotton or Linen covered, price per foot,

10 per cent, discount on 100 feet, 15 " 200 feet,

GENERAL REMARKS.

All wire used by mixelf is made to my special order, and is the best that ten be had in the market:
As one of the largest dealers told me a short time ago, "Your wires have come into the market
on their merits about, and we have been forced to keep them," so you may feel sure I shall feel charry
of that honor, and shall be very carried to furnish mose but the very been in my power.

I could give a long list of testimonials, but I will still depend on the "merits" of the wire, and respectfully solicit your patronage.

Your obedient servant,

EUCENE F. PHILLIPS.

These Wires can be had at my prices of

I. G. TILLOTSON & CO., New York, CHARLES T. CHESTER, New York, F. L. POPE & CO., New York, PATRICK BUNNELL & CO., New York, PATRICK BUNNELL & CO., Philadelphia,

ork.
CHARLES WILLIAMS, Jr., Boston,
THOS, HALL, Boston,
GEO, H. ILIES & C.O., Chicago,
H. D. ROGERS, & C.O., Cincelmatl,
GEO, C. MAYNARD, Washington,
WATTS, & C.O., Illiamore,

Rockland Die 11th 74

Edismo & Murray Sirs;

House we a simple feetine offeration in to the

prised for the decomposition of the Mine

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197-3

[ON BACK OF PRECEDING PAGE]

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Bathelin Strate

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[TO EDISON & MURRAY]

Edesin & Murray

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PB Delany

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OFFICE TOF.

The Links Rubben Comby Company.

Nos. 9, 11 & 19 MERCER STREET,

New York, November 2nd, 1874.

Mc r. 1. I. Ulum

DEAR SIR:

of Hard Rubber Stock and of goods adapted to lelagraphic and electrical purposes. We respectfully limite year all client to our low prices and to the superior character of material and teachmarkship furnished by us.

Sheet, between No. 20 Gaugo and 1 inch thick. per lb. \$1.00 Rod, from 1 inch to 11 inches diameter. "1.25 Tubing, ordinary sizes. "1.50

Prices for sheet, rod or lubing of different dimensions from above, or when out to special size, will be furnished on application at our affice.

Key Knobs ... each 15 cents.
Switch Handles ... 6 "
Bushings ... 4 "

Magnet Heads with centre hole.

Diameter... 3' 3' 1' 11' 11' 13' 11' 18' 12'

Diameter... 3" 3" 1" 11 11 12 11 12 14 15 17 18 17 19

Tubing turned and polished for Magnet-Shields.

(These prices are based upon orders of not less than 100 tubes.)

Tubing 1 inch inside diam.; price per inch of length....7 cents.

On large orders some of above prices will be subject to special discount.

Soliciting your orders, we remain

Respectfully Yours,

THE INDIA RUBBER COMB CO.

[ITEM GLUED ONTO COVER OF BOOK]

Scrapbook, Cat. 30,096

This scrapbook contains material generated during Edison's tenure as electrical and the Allentick shared contains the containing the correspondence between Edison and company officials about reclaiming the correspondence between Edison and company officials about reclaiming the correspondence between Edison and company officials about reclaiming the correspondence between Edison and Company of Containing the Containing and Containing and Containing the
The book is disbound and laminated. It contains 181 pages numbered by an archivist.

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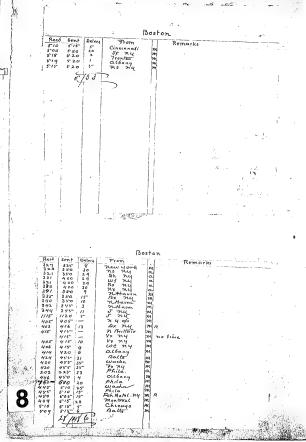
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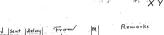
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840 8 846 8 8 14 8 12 1 8 12 1 8 12 1 9 12 1	Send Deley 190 197 198 198 198 198 198 199 199	From providence a	Remarks 28-684 29-937 26-936 26-1007 35-361 29-1252 16 55791 34 3/1 mins	
	950 34	Frinchs No	311	77
	950 44			
903	950 47	7u ny	m	
915	950 30-	WM autory	a	
915	950 10	11	a	
	150 34	"	!a	
	130 10	Westfieldny	0	
930 9	135- 0-	Boston	M	
	241 /0	Hartford	m	
	007 37	Rxny	a	
	007 -34	Bh ny	a	
942	1007 20	7u "	a	
1940 1	1007 27	WM "	a	

Philadelphia

					2.3		
Recd 940 954 940 937 1000 1000 1000	1007 1015 1015 1015 1015 1025 1028 1028	28 18 68	From Funy, newyork Funy The My Frenchs Ho NX My Willington My The Bransmick	86565655		arks	The second second
1000 1012 1010 1015 1016 1018 1018 1020 1025 1026	1050 1050 1050 1050 1050 1050 1040 1040	50 88 40 34 22 24 48 41	Boston AC ny HX 1 Bx	0 0000	-/		
1044	1106 1106 1106 1115 1106 1106 1106	37 36 39 39 20 226 221	Dy "Dy "AN "AN "AN "AN "AN "AN "AN "AN "AN "AN		e sv	e e	A grade

Philadelphia.

				0-00
Reed	1 Sent	Delay	Frem	1.1.1.1
1050	1120	30	ST NIX NY	
1057	1120	23	Bridgeroot	a
1100	1120	20	Fall River	a
1055-	1120	20	Rx NY	a
105-8	1120	22	MX II	la
1058	1120	22	French Hou	
1110	1120	10	Boston	
1111	12.02		Rd Hy	a
1116	1130	49	Bx "	o_ m
. 1120	1440	14	11 15	m
1124	1202	31	40 "	
1126	1202	36	albann	a
1126	1216	50	G-C "NIL	a
	1213	-	WM "	a
1136	1216	. 1		a no limit
	12.13	110	new york	a
1135	12.13	38	new york	a
		37	new york	a
1137	1213	36	new york.	a
113-1	1240	63	7× ny	a
1135	12 40	65	My ny	a
1147	12.40	50	K× "	a
- 1	1202		Pawluckul	a no little
1152	12-38-	46	Boston	a
1150	1238	vs 1	Wf. ny	ala
1200	1238	38	mx "	a i
	1240	40	nx n	a
12.00	12.40	40	Yu ii	a
1207	1240	33	7x 1	a
1 1	19	3.6	,	ω,
1 1	1 .	- 1	i	1
		i		1
		7.7	The state of the s	- 1

Philadelphia.

·	1	1	\$ 6.23 miles	22 (22)		
Recd	tent	Delay	From		Remark	
3,00	356	56	Pank Ho	a		
3 /5-	356	41	BL	(a)		
316	407	51	Z.	12		
318	407	52	7ú	al		
32-0	407	49	Rd	a		
321	407	46	71 7	α		
331	42.0	40	M X	a		
33.6	420	49	7x	a		
338	420	. 42	Dχ	.GC		
340	120	10	Boston			
. 330	420	50	Lrx	a		
335	420	40	ny	a		
336	4/3	23	mix	a		
400	444	37	nijork	a		
410	444	37	Stxydig Cut	- a		
427	435	7	7x.	246		
416	440	24	PK Hotel	m.		
445	455	10	Detroic	m		
431	540	9	ou at	a		
442	540	58	nyork	ai'		
500	540	40	Red bank	a		
1455	540	40	D _X	a		
451	540	49	Daylon	9		
419	540	81	A/X			
412	540	88.	EBuffalo	24 -		
420	540		E Buffalo	291		
540	550	10	Fol No	191		
	29/1	202		1 1.		1
	1/0	1		i i		
			Name and Administration of the A		to the consequent	
	J		2.5	1.5		-

Philadelphia

1	Philac	rechild	
Red Dent Dulay 548 600 /2 600 600 /2 550 600 /0	Montral	Remarks	* * * * * * * * * * * * * * * * * * * *
3/32	Moulvial 1	м] 	e/v:
154 200 6	J.ny.	aug. Delay	
30 250 50	as my.		

Philadelphia :

Reco sent Delay	From	Remarks
1215 1238 23	nyork	a
1211 1240 29	7×	a
1205 1238 35	Porooklyn	a
1204 1238 31	wm .	Q.
1210 1246 36	Hy '	a
12.15- 12.46 31	В×	a
1230 12551 25	7-childo	a
(233 1255- 22	nyork	a.
1235 1255 29	Prombence	a
1217 1255 38	· Fu	a
1220 1255 86	e/c	Q
920 1255 210-	Brooklyn	C. 1111 24-111
1224 12557 25	WM	la'
1230 1255 20	Bh	a
1240 1255 15	nyork	a
1233 1254 27	4x	a
1237 1254 18	77×	a
	Nχ	a
1240 120 09	иx	a
1245 120 34-	E Ormago	a
1247 120 83	nx	a
1257 140 43	Bost	a
1200 170 1 70	wf	a
100 140 40	we	α .
108 140 32	4x	a ·
100 7		*
		and the second of the second o

Philadelphia.

Rema-ks

K46.60	dent	Delay	Trom	- 1	1 (0)
104	140	33	Bh	a	
108	140	32	Buston	a	
100	140	110	Prov	a	1
110	140	30	Bh	a	
100	140	210	Prov	a	1
110	140	30	Derylet	a	
115	. 140	*	wf	a	
120	-215	30	us	a	1
115~	215	100	newpart	a	2.
115	2.15	60	nyork	a	
12.6	220	54	St NIX	ci.	
124-		.5-5-	Bx.	a	
137	2.20	43	Rx.	a	
140	220	40	Vx	la	
150	234	444	Ŕĸ	a	
156	234	38	Bust	q	
215	234		wf	C4	
	304	19	Brea all luis	a	no hitto
244	300	16	Ax	m	ļ
281	240	9	7x	a	, 2-/
2.31	304	13	V x	a	24/943
3,00	334	34	nyork	a	
3.00	334	34	Fall River	a	/
251	334	43	7×	a	
300	356	66	Brooklyn Wf	a	+ 特
300	350	50	. ""	1.	154

122 Front St "WF"

Reed sent Dolay	From	Ti	Remarks
850 9.00 10	newark Balto	24	/44,
1118 1135 17	Boston	ૠ	
1200 1230 13	Boston	74	
1243 1256 13	Boston	714	
145- 1254 -	1305600		u es iX
213 235 22	Balte	માં ×	
253 255- 2	Buston	m	
300 305 5	Boslow	24	
10/20			
346			

27 mgs. avg. Aslay 16 mins rand Central

Reco	Sont	Stlay	From	1 1	720	arks
820	. 834	14	718 714	1.1		
826	: 835-	9	Oodensbu	rah		
941	940		French Ho	nu l		
931	941	10	Hudson	/		
940	954	14	Balls /			
1014	1038	24	Hartford	1.7		
1055	1056		new york	4		
1059	1//2	23	Bugarvorx	. 11		
1121,	1/25-	1	Horwalk	1.1		
1117	1126	1	French Hos	ites		
1140	1150	10	-Sy ny	'		
1114	1152	38 1	washin	1.1		
1247	1052	U"	nswark	A	Kow 11 1/	
1/245-			Boston	l a	" "	
7243	1254	11	"	1.1		Š.
1255	. //2	17 17	Balto	. 11		
115	145	130	Newport	11		
206	210	14	Park Hol	19		
210	2.20	10	axny	/ 1		
300	310	81	Syracus	4		
300	310	10	Rd ny	1 1		
308	811	10	Boston	2.40		
232	314			1 1		
330	340	1/2	Balliner	1 1		
400	400	10	washn.			
354	401	-	Concord.	- ×		
434	448	2	Yorkvilly			
13737	448	14	Rocheste	5 -		
135	3.08	73	Chereland	0		42
Dim	22 /	120		×1		· Anthony
Mary Mary	-1/	A38	16 mins			- Challen

			lvem	Maven
:				
Reed	sent	Delay	From	Remarks
145	2.05	20	Bx ny	11
2.11	217	6	Phila	
212	2.20	8	Buthalo	1 1
	2.41	-	Dx 7vy	no time
2.40	242	2	Providence	11
315		22	sx J. C.ta	ii
315		. 2. 1	Beston	1 1
337	350		Park Ho 114	1 .
330	350	26	Hartford -	× why
	405		n Protlani	no time
405	414		4x 74	Li
408	416	8	Hymy	
430	445		Boiler	1 1
445	525-	40		1 1
600	6/57	75"	Lansing Mich	1 i
614	625	11	SX J. CITE	1
610	616	6	Boslow	[1
740	800	20	Waterstung	1.1
	- 9	217		1 !

43 mays Aberage Dalay 32/2 Min

Washinglow

. reec	Sant	Delay	from		·	
12.12.	1236	24	ndaven		Ruworks	
	1240	119	nyork of	a		* ***
1230	100	30	NyHo	cı		
100	130	30	Boston	a		
115	. 130	15-	nyork	امر ،		
,116	134	18	MX	o.		
228	308	40	,0°,	a		
230	308	38	7Y S	a		
236	1300	24	Plt No	et.		
247		73	Br	a		
255		65-	Prou			انادست
254		66 1	Fu	e.		200 7 7
303		57	WHaven	a		174
32.4		1	MX	CL		4
335		17	M X	a		in the
345		7	Boston - Lix	α		
5-16			-1×	al		
520		1 1	* Phila .y.	m why		
	602 20	io /		mi		
540	604 2		K×.	M no trans		
	Appendix and a second	7_	Delver	m		
- 1	170	0		1		

ŧ						
ı -	410	Sent	Delay	From		Remarks
10	35-	1044	9	nyork	·m	
7	21	720	8	Wildown	lm	
5	15	525	13	Chicago	III.	
	48	616	28	Omaka	IM	
4	30		1	Hy		no lime
8	10	830	20	win .	a	
1 - 8	108	830	22	7m	0000	
	04	830	26	1 10	a	
	30	858	28	015	۱۹	
	08	928	20	V×	a	
	19	928	. 9	l V×	a	
, 9	06	928	22	٩c	a	
. 80	10	928	48	Rx	a	
		955	25	Rd	a	
92	14	955	28	À,×	10	
91	18	1014	26	Fu .	a	
9	45-1	1014	29	7u	a	
10	16	1040	24	PH- '	a	
92	6 1	130	124	RX	a	-
10	50	1130	40	BY	a	
10	56 1	1139	43	М×	a	
110		1130	30	Bust	a	
110	7 1	134	27	wx	a	
112		200	40	my Ho	a	
115	6 1	202	6 !	ar	a	
	- 1	24/	643		-	

765 6# aus & 4276 5x "GF"

Reco	Sent Orlas	1 From m	Remarks
845	910 25	W.C. HY	
856		Great Neck LS.	
855		MEWNOTH	
85.5		Brooklyn	
1016	1035- 19	Ge ny	
. 1010	1046 36	Buston	
1020	1046 28	Rd my	
1050	1057 7	Mx mi	
	1059 -	215 714 20 /1me	
1150	12.00 10	new york	
1145	1203 14	Dx nu	
1140	1200 20	21.5	
1207	1225-18	LUMSKH	
1220		Warhouse Pt	
1210	1230: 20	MAGOEN	
1240	102 22	my Ho my	
1236	103 27	evashu	
1243	103 9	Fu.ny	
123		new york	
147	200 13	Middlelows My	612
135-	204 29	THE GOAT No "	P2 1
15-5-	204 9	Hing	1-60
208	233 25	@x "	11/82/19
1 155	235- 40	Newark	34 / 682 (19
216	235- 19	Queury	
2.58	310 12	Ballo	33.6
	310 -	new york no time	2.
302	315-13	cuf ny	
315	315	cu ashu x	
325	345 20	mx ny	
350	401 11	Phila	29/612
4. *-	6/2	3%	

Long Branch 100 1049 16 9 9 9 ny 170 131 11 10 100 100 100 100 100 100 100	412 423 11 C 425- 447 22 d 434 445- 11 R 449 453 4 CC	trom ic bany to my thinteel my casha casha casha thing field Ohio	Remarks.
170 131 141 150		Long Branc	h .
215 259 90 Newyork Red Bank Brooklyn Rend Sent Delay 1942 1100 1242 1250 125	1130 131 121 6	f ny oash	e de la companya de l
Red Bank Brooklyn Red Sent Delay Trom Permarks 1100 1748 Missgr Carrange Dalay 4. Brooklyn Remarks 1100 1747 130 12 Newarkany m Famarks 1100 1748 130 12 Newarkany m Famarks 1100 1748 130 12 Newarkany m Famarks 1100 1748 130 12 Newarkany m 100 100 100 100 100 100 100 100 100 10		Keyport	
335 345 0 UM. n.y. Red Sent Delay 1942 1942 1942 1942 1943 1950 1944 1950 1950 1960	215 255 40 n	ewyork .	7
335 345 0 UM. n.y. Red Sent Delay 1942 1942 1942 1942 1943 1950 1944 1950 1950 1960	-		
Read Sent Delay From The Rest of Sent Delay Thomas Remarks Thomas		Red Bank	
Brooklyn Brooklyn	335 345 70 WA	1.70.4	
Brooklyn Brooklyn		market and a second	Ji.,
1010 1040 30 100 714 14	1942 1940 1978 1978 1978 1978 1970	Trookly Themark Themarkany Themarkany Thomarkany Thomar	Remarks stour by bay 1100-1 6444 5047 79min

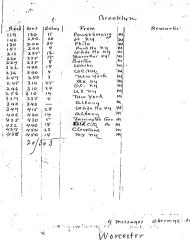
/03/ /285 /253 /253 /256

1200

18 1200 19

Patrolia Ont Br ny albany albany Boston Oschrituming Washin New York New York Ollbany

no time. auto



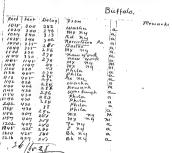
1026 1037 1100 1115	Sent Aelan 1045 19 1046 9 1106 6 1221 66	mx my	1Remarks	-
810 810 1051 100 625	\$30 20 \$15 5 1055 4 209 69 \$31 126	Parwark Brocklyn Manen Fu Washn mkt	Herson or HK smultorrage Delay or	40 minutos

Irenton

		and the second s
Reed sent delay	from	Remarks
650 707 17	mallawen	11
830 831 /	Boston	- 11
850 902 12	Prooklyn	
216 410 784		11
W/13/8		
		4
0 0/2	- this	J. mags. are sely p, mins
830 840 10	13h nu	The are did to min
		7. mags. are Detty D. mins
1039 1040 /	ßγ ".	
1028 1041 /3	V× .	age .
1020 1041 21	Boston	
958 1044 46	7x	1.1
1205 1214 9	wside Ho	11
1156 1214 18	Hantford	
		and the second s
1 / 1/7	' Wa	terbury
845 855 10	LUM MY	
930 950 20	Rd "	g mayo ang, dela. 112 mins.
900 951 51	Rd "	
949 956 7	Bridget	11
1029 1105 36	RÓ	11
1146 1250 : 64	Rd	11.
1146 1255 69	18h Gaster	11
712 730 18	nHaven	
712 730 18	MATERIAL	1.1
7/42	,	

Buttalo.

1			
Recd sent Delay	From	Romarks	
810 845 15	French Ho My	a rusp nine	
820 845 25	Ohs.	a . 31 = 4446	
806 845 30	oks	a 26 = 6528	
	French Ho ny	20 20 13	
	Jroy	a 57/10.974	
	newyork		
832 900 12 918 950 JE	Phila	a 182 min = 3	3 / 2-1
	Boston .	ia.	, ,,,,
920 950 IV	Phila		
914 950 -36		م	
915 945 30	Boston	α	
915-1 945- 30	Boston	a	ų.
900.1000 60	Boston	a	
930, 1000 30	Jroy	la.	
931 1230 179	Balto	a	
920 1230 200	Brooklyn	a. ,	
1000 1230 200	new yk of swi	ia Trouble on wire	
958 1230 148	Phila	0	
946 1230 146	9c ny	O.	
1000 1127 77	news Room	im.	
	::	m	
1000 1124 30	. "	301	
1000: 1130 : 96	newark	a Trouble on wire	
	Balto		
1008 300 379	46,74	a	
1010 325 27	นี้ส์ พิน	a	
1012 325 3/3	Balto	0.	
1023 325 302	Oto	a .	
1020 325 300	washn	a	
1026 300 274	washn	, q	
	matha	6	



V11 = 6

83 1110a, ave. Delay

. 33		Albany								
Reed	Sent	Delay	From	П	4 " " " " " " " " " " " " " " " " " " "					
615	8/3	188	Fu ny	11	30. 183:					
G 15	814	120	74 nu		21. 168					
911	9,10	40	BR NY	a	- bound	and the last				
906	950	44	ge ny	a	83/ 1,39					
902	950	48	Boston	dda	78%	Bru	= 1 h	18/4	Licus	
900	950	500	74 ny		/ -/	•	. ,			*
933	980	17	4 714 H 714	a						
938	9 60	12	H ny	aj	. 2					
1009	11 30	21	Providence	a	· colores	in)	trouble	acc		
1006	11 30	84	mx ny Bouton	a	day.					
915	1130	/35	- MIOBBUY NY	a						
1012	1130	158	Columbia SC	a				.,,		
1023	1130	169	Rd ny	a	•					
1025	11 30	142	7× 74	a						

nekt ny

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ada

1125 45 RX PLS PLS PLS PLS PLS Wast 744 744 744 744

1200 5

12 00. 77706609

1040

1045 1200 1200 1050 1104 1200

1104

1100

1101

50

245-00 ny

mx Wf ny

"Brooklyn

SAMA ABOAS

			7,1847
Reed	Sent	Delay	From
1120	/200	40	Boston a
1116	1200	94	40 ny a
11119	1200	91	20 Y
1130	1 PM	90	mx a
1230	/ -	90	Phila a
1114	/ "	106 1	n.y. a
1130	/ "	90	Washin mlet ny a
1146	/ "	74	PK Hotel XY a
1138	/ "	82	nyork a
1151	/ "	69	PK Hotel ney as
1203	/ "	157	n.york a
1206	/ "	54	Fu ny a
1156	1 "	64	Ra ny a
1200	1 "	60	78× 214 6
1214	/ "	46	Strix ny a
1215	/ "	45	Rx ny a
1215	1 "	45	HF NY a
1235	2,20	105	neyork a
1234	220	100	ex " a
1250	220	90	nyork a
1257	220	8-3	444 Brome stry a.
1210	220	190	ex ny a
1253	220	· v	Yx ny a
1.07	115	178	Vx ny m
112	410	151	
139	410	173	
137	410	150	
134	410		Marin a
128	410	162	
146 .	410	144	mx ny a
207	4.10	/23	we ny a
206	410	124	ge ny a
	32/2	707	
	35/2	477	_ ::
	7	- Lamenta	

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trouble all

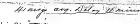
TOTAL OF THE STREET		,
From	11.	Remarks
25 214	a	
nyork	a	curires ca
197 "	a	WETER OR
Pahi Note (ny	a	day.
my nu '	ada	
My nu	511	
Boston'	24	
we ny	34	•
744 Broom + St	201	
40 my	m	
57 711x 714	m	
Boston"	270	
51 11× 714	a	
Philadelpha	a	

Albanu

Sent

78 75

81 70 81 84 5-11 5-14 5-06 5-06 5-14



Franklin St "FX"

_					
Reco	Sent	Delay	From	M Reu	uarks
831	820	20	Mallowen, ng	77. 261 14 - 182 41 - 443 11 au	
915-	840	9	Hariford Boston	11/11/11	
912	921	9.	Balle	1170100	
916	923	7	Bos (on	41-443	
930	930	8	Newark	1	
950	956	6	Bost	// 200	~ · · ·
1118	1130		13061		~ _
1024		12	nttaven	1.1	
1033	11040	7	Buston	j :	
lton	1106	6	Balla		
1117	1110 -	_	Boston	-12	
1219		6	Philo	11"	
1227		8	Boston	1 1	
1227		_	11	1 1	
12.22				no time	
1240		5 !	"	1	
1250		0	Phila		
12550	100	5-	n .	î ;	
1255	102 7	7	Jroy .		
1258	106 6		Bust		
110	110 -	_ !	ä	i v	
105-	110 5	- 1	ii .		
122	137 /		11	10	4-
150	200 /		Phila	1 1"	- 14

			- 15			
	Reco	Sen+	Dolay	From .	11	 Remai
	205	220	15	springfield	1 1	
	210	226	16	Buslow	1.1	
	248	310	22	17	1 1	
	312	3716	4	, ,,	1 1	
	406	420	14	" , ,	1 1	
	337	336		Haulford	x	
	328		. 8	Balle		
	341	346	5-	O. (bany	1	
ŧ	344	355		Boston	1 1	
	410			accan	1 1	
		420	10		1 !	
	415	420	5"	13051	1.1	
	430	436	6	worcestu-	- 1	
4	400		41		1 (
1	447	500	13-	1305(00	11	
	445	5-00	15	/3 05 (6 H .	1 1	
	i	ī	182	Ĩ	1 1	
	1	1			1.1	
		- 1			1 1	
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	i				1.1	

Norwack Conn

Reed Sont Delay 831 835 4	From Kx My	Remarks	· 3= =.
940 952 12 945 953 8 956 1003 10 1035 1050 10 1122 1152 30 1224 124 60	Ballo Boslon GC 744 Boslon Phila GC A4		Pr.
155 214 19 645 704 19 9/174	Brighton Brooklyn		
847 900 13 938 937 6	New L	ondon Conn 2 rusgo avg. L	leton Juins
T-7	Nor	wick Conn	
1/35 1/20 1/35 1/20 1/35 1/20 1/35 1/20 1/35 1/20 1/48 2/4	Boston Thew york H ny Warford	no time out to it no time out	-24 mins

1 average delay I how 44 mm

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	Sent Delay	From H NY	Remarks
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٠	930	450	1 7	Beston		
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227	232	5-	Balle	
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230	245	15	Boston	I is a second of the second of
348	303	12	Boslow	
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Recd	Sent	Delay	From	ľ	Remarks
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136	146	10	PRa 1		
220	240	20	Honsford	- 1	court raise av
241	256	10-	Poughkerpini	- [Can't raile MX
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350	350	2	Boston	-	
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400	414	14	Phila	i	i
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405	4/6	11	Buelon	1	1
	426	- i	Coasha	1	1
427	430	3		1.	no time
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	431	5	Rochester	1	1
425	446	81	N.O. ny	1	1
438	446	8	Phila.	1	ŧ
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936	9 1/2	6 1	71 London	214	
1000	1015	15- 1	albany	14	
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1125	1139		Phila	344	
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1132		19	Phila	ш	
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Reco	Sent	Delay	From	m	Remarks
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902	910	8	Buxborough	71	100117
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900	915-		Buston	111/	- 21/
912	916		WHELLDAN		12/2/
927	930	3	Hartford	1 1	, - ,
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. 950	1020	30	Buslow	1	
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1116	1145-	29	PK Hotel ny	No time
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Contract Mr Pearson night Dignal Operator very gentlements. Gowy fellow well known amon Business men and popular Outrale the column leslima HELAN on view and can consummate banquir for good office slight advance on present one number. ald customers will come back if he is appointed -Side note - Universal lection my can Bowles governs the priest. matters lategraphico of large for certage Kew England paper Everybody Rays = To make your fortune oceme Boules, not different matter if work palintactorily -done, Dungtield Corruption coupid out fruit, & unportant our to et end

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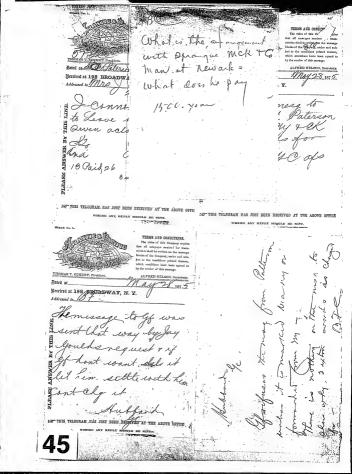
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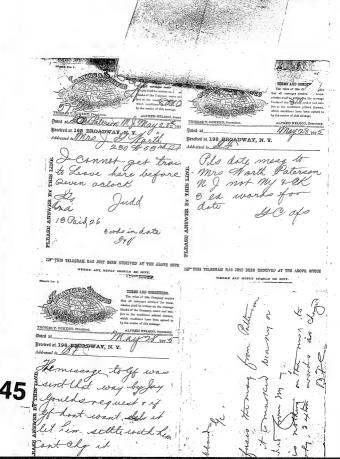
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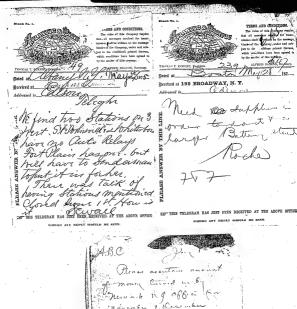
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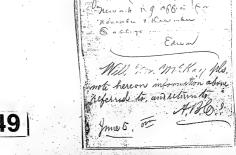
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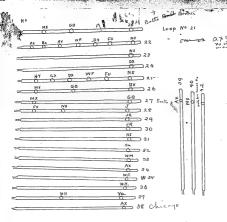
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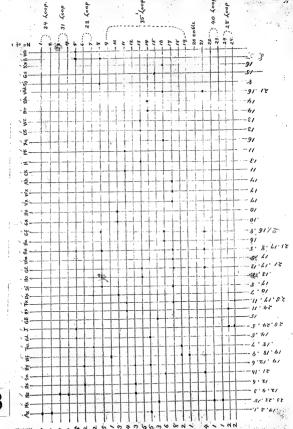
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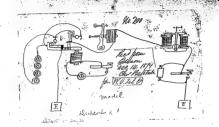
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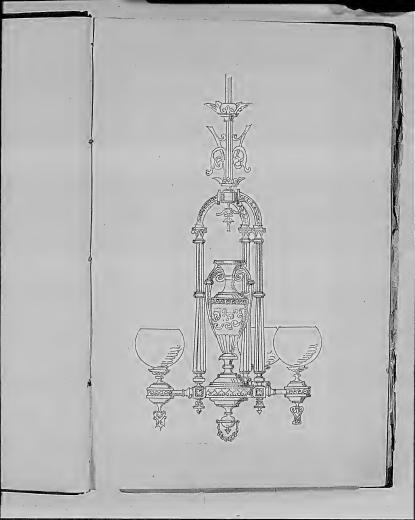
Scrapbook, Cat. 593

This scrabook covers the period 1873-1877, there is also at least one leave 1878. Most of the menteral relates to Edison's electric pen and duplicating press. Many pages contain sample documents that were produced by the pen and used a devertisements. There are also several items relating to the exhibition of the electric pen at the 1876 Centendra Exhibition, including two notes in Japanese written by members and apparese Commission. The book dopples made by Eugenio de Zuccato's "Peptyorgraph", a copier which competed with the electric pen. The spine of the volume is labelled "Electrical Pen Scraps T.A. Edison Menio Park, J. 1876." The book contains approximately 150 numulmeted pages.

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Pro, accignment of this claim orang portion histofood bewerginged in the fourment of dividends, unless notice of such racignment is given to the Receiver and outside upon his books before such dividends are declared.

Beers C. S. Frist rolling Court Bashus 4.0.



Office of Ale Dermid & Ocrtcl. Commission Merchants, NE 112 Sa Salle Smet Chicago, Spril 20th 1876 Our markets are generally weak to-day owing to the same causes as yesterday - worm proving weather, good prospects for seeding I dull New York. In the morning the weather was threatening which strengthened it somewhat That as some as the sun shines there are more sel lers than buyers Eleving 124 fresh 124 chay 10th 7/8 June. It is difficult to tell how much lower it will go but it would seem that with present low Sreights, whereby New Hork rolling foreign man let shippers will soon be included to take some of it Com ruled quiet & casier closing at 48 Fresh 48 bed for May 147/2 June 4848 July. Food weather will tell on form more effect. wally than wheat because we know the corn as in the country while it is uncertain as to the amount of wheat left. Eastern mar-Kets are easier to-day & while shot com will bring a good frice both in New York and Battimore the Jutier is largely discounted We feel rather weak on it Dats steady at 33 fresh 3318 a Sheslay 33/8 June. Shipment are large which is the strongest greature about them. Backy dull rlower closing at 620ach 61 Hay 56 June The disquiet roteady at full pices will more demand for Hundarian Vestillet. Trovisions active insettled Ford closing at 21 2 22 2 stay & Land 13 2 20 same options Sales were made down to 1305. Receipts of hogs 10.500 market about to love with some buyers asking 25 concession The Old Wheat study 129/1/18 1 10 78 Juni Orne quiet wheady 48/8 whay 17 To Some 118/20 To July. Dirighaly your Mc Darmed Ototel

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Donertith Edison's Per. & Press 24 Union Square W.S.

from Treverk Daily Advertiser of September 17 1975

The Liatest Newark Invention The latest greek of Messack invention period is no tess interesting than weefal to is to be known by the title of the "Aulographic Press," and consists of on Election pon, buttery and roller press, the functions of this envious combination being to sacilitate the duplication, triblication and, is necessary, the multiplication of Tellers, trade and commercial documents and pectines, The " bloom Par" is the most ingerenous part of the instrument. Imagine a short tube of bross Reporting to a point and surmounted by an electric engine cornection there man a speed of thread, Through the libe runs a long model, the point or which when witended for action, protrades about the signish paint of one inch beyond in the eveny sectromity of the brace tabe, or pen-holder. The little engine alog of the with comming of me war there, or pure more me interested and repets the holder control of a double magnet which alternately altracts and repets the poles of a small countries when, producing a supply resolution and some standard who was some and some first power of the neadle. The upper and of thick is also here to the summit. to pratrude from and retire into the end of the helder with great rapidity Altached to the engine by a wire thread is a small bottle constituting the ballows by which the electric engine is propelled. The whole apparatus or troth much like an ordinary sellow possibilities with it has on an analysis of the product with it has on an a sellow promoted in lock. The product operation in a place, the point of the poin battery and write whatever you wish, the electric per being dissily handlik as any other The characters, however, will not be traced in blood but by diffed lines, the rubid meters of the reddle process as they can be pour of the Per to thread to and from the reddle rund (which the law but a factor of the per to thread to and from the redd truck (which the law but a factor of the per to the factor of the per to the factor of the per to the factor of the per to the factor of the per to the factor of the per to the factor of the per to the factor of the per to the factor of the per to the sheet of rower and letting the insert string small hales into the obsertabile you make him book and forward. The punctured shear is their used as a mould for the minutage when is then used as a mould for the minutage state of air

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Importers and Wholesale Grocers,

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. O. Box 1895.

New York, June 30th 1876

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Wheat Flour, all brands but Victoria"

Graham Haw in Biles only Homing in Ablandy Level Com Duid on Billing Togs in Downs

Sweet Con Duad in Blandy. They in Drumb Olelad Preches "Dehood & Vandon Layer Plaisins"

Plain Layer Rawins" " Red Cherries" 2 lb Care

"Blooklerrees" 216 Cans

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On Bangen Buy! "En Expanda Han Sugars,

Tienes all Comes,

Under the head of Additions there should have been in Frice Leat.
"In perial Gramson" (See Farineceous goods)

Delisioned Jelly in sof partages (See Jelles)

He Ke & F. B. Thurles & Ca

Thandinavens Honton, 1913 - 5th Over, Chicago, 20th Juni 1876: Hoistaredel - For en maned siden and is in Dan at Postkort, med Opfordring til at belate Own Buboker ptionsbelow, for derved at exholder do allerede actions a Dole of Amerikas Forenede Status Status; men on has and much be modlinget Som hapan the handedo way when Deres Oponar bromhed par Jagon, vi haube at mine to so Peterling fra Dem inder en Maured fra Duto jale d'indires of Gilli forsta, og antage at kunne indtil den stid skaff Dem namte Pramistog- US have when vente larger, and til don 20th Juli med Betalingen for Deres Lub Expetion, har vi till den Tid ilke hist for Dem, man is writing, at De ikke onsker at vedbling med Does Chebokerption, og stam see denfor Bladets Forsendelse til Dem for den Dato af-Men vi haabe inideriid, at De pentidis vil vel-bline at ware on Leave of Eleantine ven Beginn bedeme is den tilbagerounde Del uf alert 1876 at blive of sardeles Enteresser og Vagt, sanat en god Wois vil were en Wodwendighed for enhan intelligent Mand, der Broker at folge med Siden - Vi Stole pear, at det venskabilize Forhold, der hidtil har hards Great mollin os, itake maa blive afteredt, men at De cange mas vedblive at vary in af Grandinavens Lasers - Kaubende at modicine Deres Lubskriptensoldsling for den 404. Juli, og suntedes blive istand til at sende Dom de For Vanede Staters Historie, forbline vi Denel med alatelse Anderson Layson · Skundinavns Vidgirere



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the unsound methods of conducting it We ask now that it be restored to a found basis. There are well known principles of business, and we wish their carefully applied to ours. First, There should be economy in every department and detail; in rents, commissions, salaries and queral and peth Expenses. The present condition of the bubiness and financial affairs questly will not warrant the former extravagant expenditures. to business can enceport them. They absort

both profit and principal and le count

perunit it. The conduct of an office at any

point must show fair results or we shall

dose it or change the management.

Leond. It will not be sufficient to show paper profits or results. These wills got key our Pactory wills. We must have the money for the good recet or we can not prosules mow . The ack Hun That you wenit us cash to the amount of The goods cent you. This you can do through economy of expenses and juring



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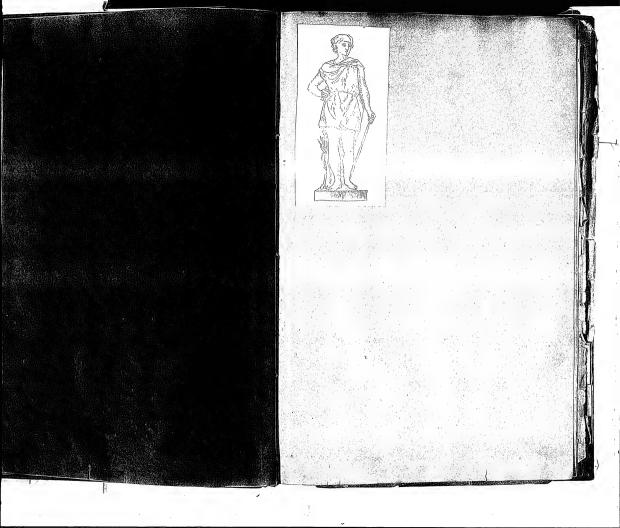
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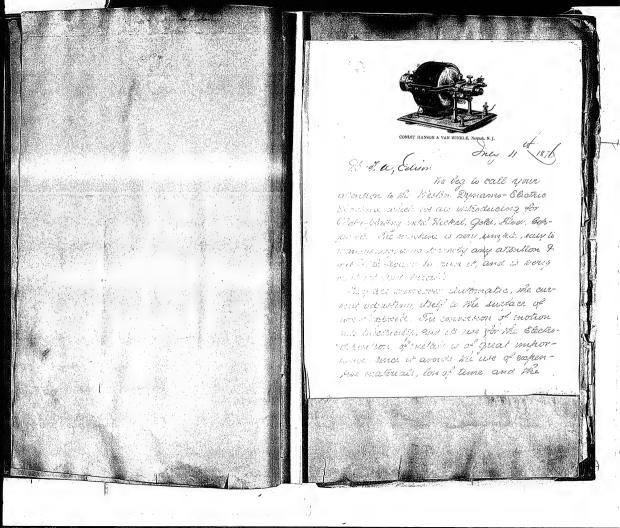
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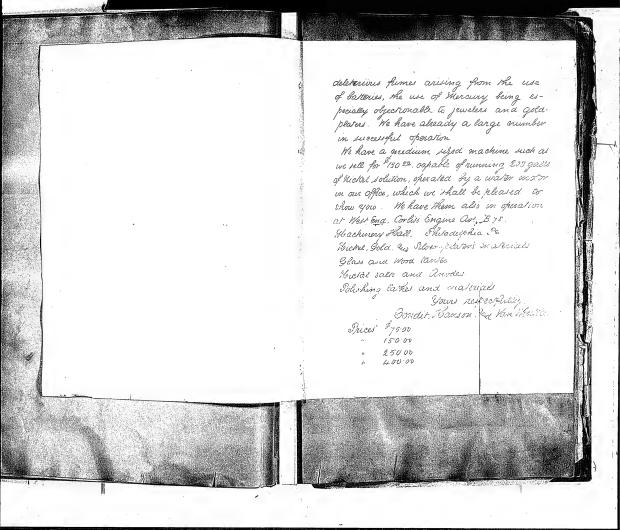
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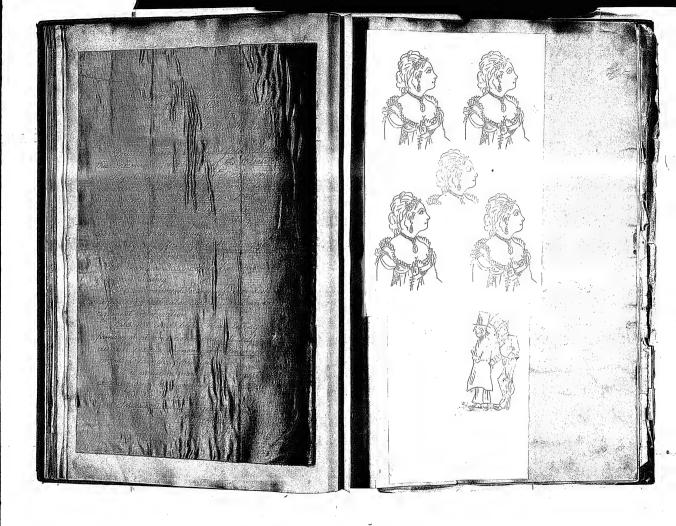
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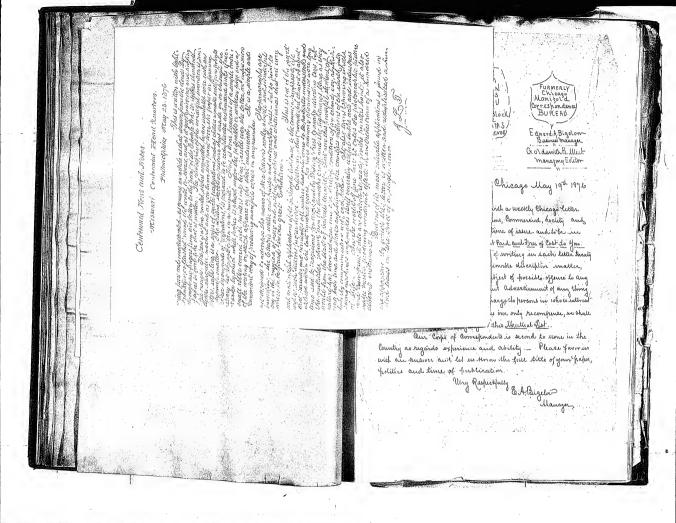


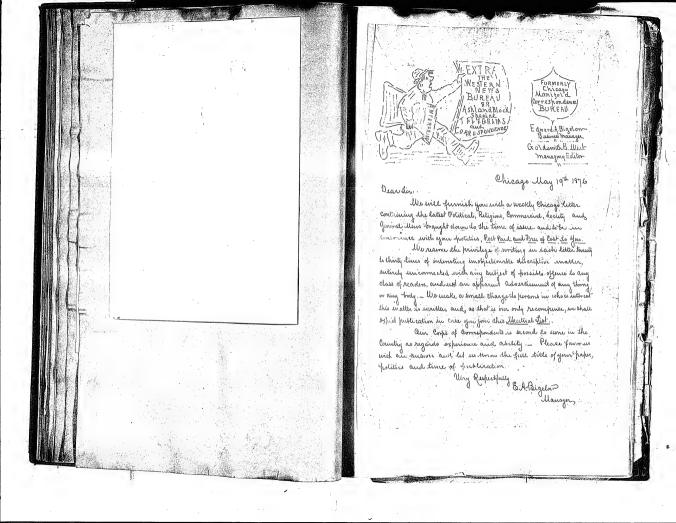


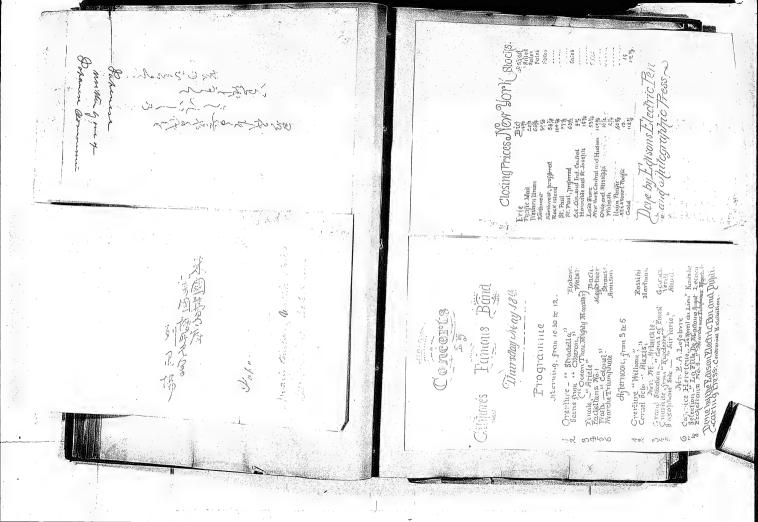
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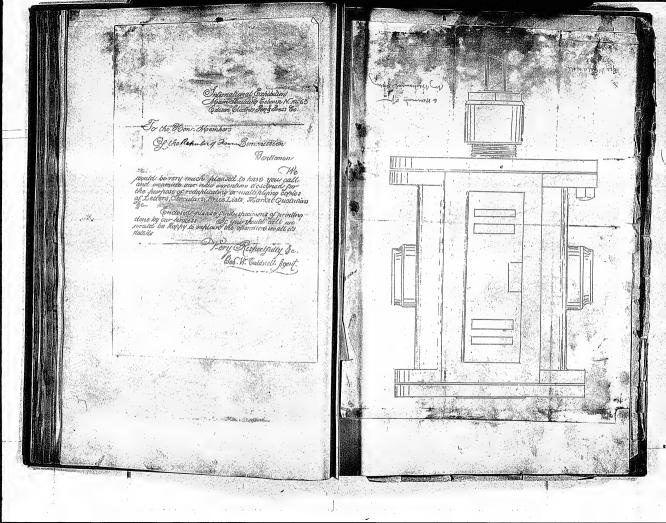












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→Bill of Fare ~ souris

Mock Herrina Cork :

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Red Herring Cross-eyed Herring

Blind Herrina Cold Dishes Mashed Ice Fried Iceberg Sealed Herrina

dold Ice Broiled Ice berg

Roasts Chicken 48 years old Gander ala Goose sauce Pork a la Hamsauce Antelojus a ta Deer sauce Buffalo a la Robe source Turkey stuffed with Rubber Story

Old Steage aid Maid

Broken Ice

Row Icchera

Euchre Kenzo Presbyterian Billiards. High Low Jack Cassino.

Tonque. Old Maid Lije Vinegar Sauce Mother-in-Law-

Curtain Lecture

Locusts on half shell ... Sterred Cat Boston sigle ... Broiled Hair Piss Fish Citals a to Tan Saure. Fried Horse Blan Kes stiffed. Saired Chiquons Simued. Fless with Grose Selan See stiffed. Facilities of Professional Fless with Grose Selan Will Black Brade Eye Brown. Finassed Frost Survey with Black Brade Eye Brown Landed ... Spiders Toes breaded ... Fried Food stiffed with ... Trian Mice.

· Vegetables

Corn Fried

Tight Books Corn

Soft Corns.

Pian Sceel Pudding Scardust Rudding a La Pine Sauce

POSTTY -Leather Res with Buckles - Honor Re cut Bias -Round Shouldered The Mustaril Seed Puckling-Ruissor Pic Good Years Raient. Custord Pic Left hended . Dessert.

Eric Canal Ice Cream Floating Roft (alalock 4) sauce - Goat Tally Packet Ontons

Fruits Nuts to

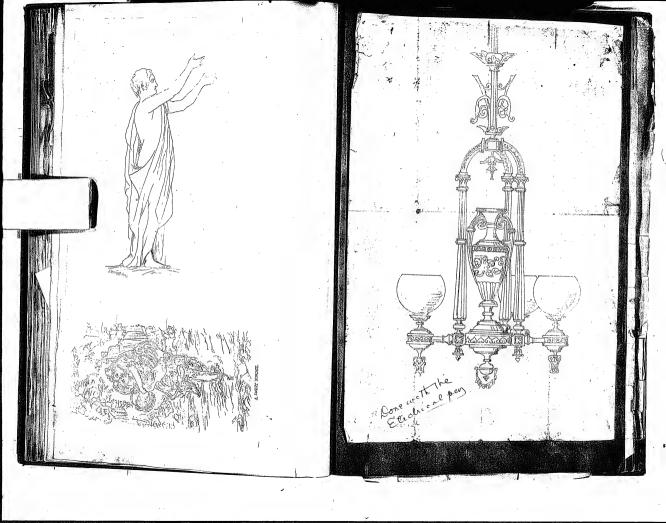
Liquids. Boiled Oil-Hot Water

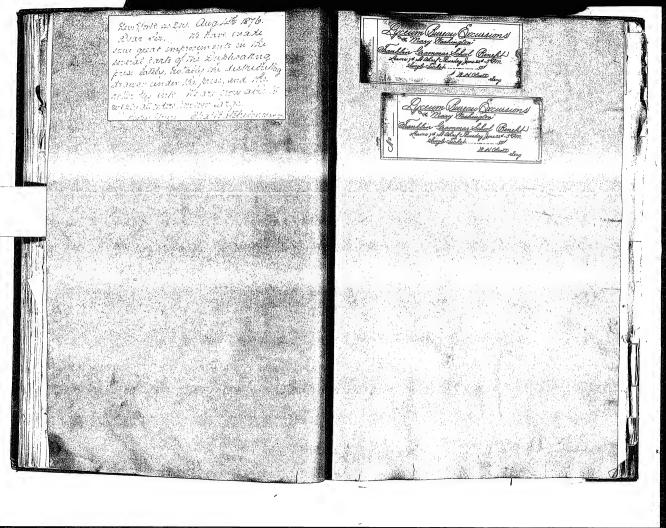
Corn Cake . Snow Botts Boiled Acoms.

Boarding house cake

Hard Water-

horse Cheshnul's Call Water Hair Oil.





dh Joseph Ulu. aug. 26. 76.

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We have in constant use one of your Edison's Elistric Cens + somaider it indespensable. We are grantly himself with it is a command it to any way who wishes to do his own frinting at little rook

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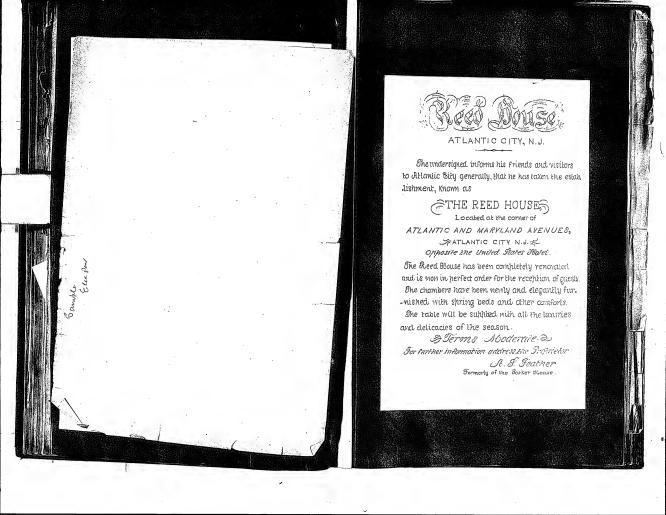
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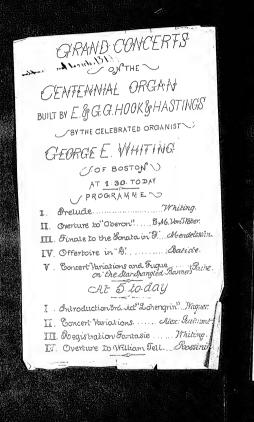
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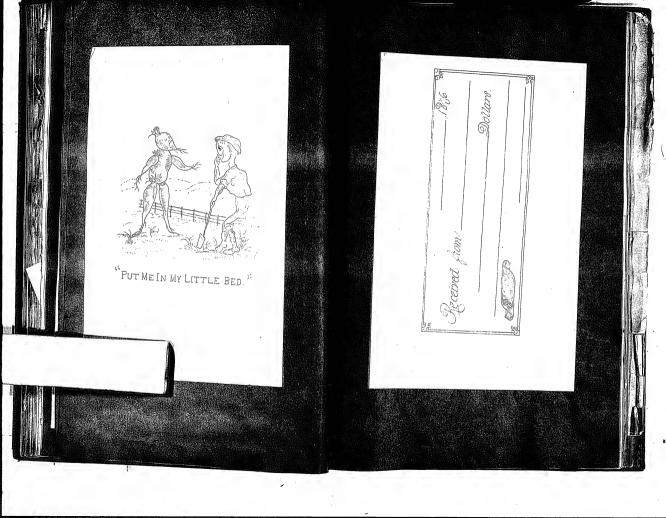


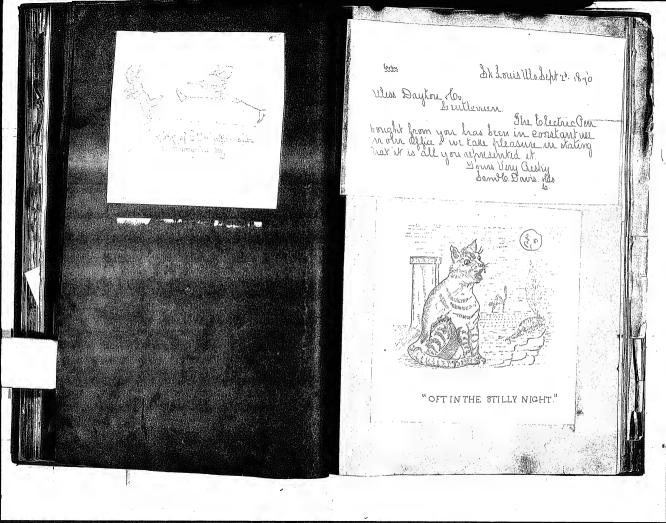


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III. Poegistration Fantasie It hiting.
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Uny Respectfully James K. Maar Acty Gust Osh Phi Gusi

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New York July 11. 1877. R. Honzy.

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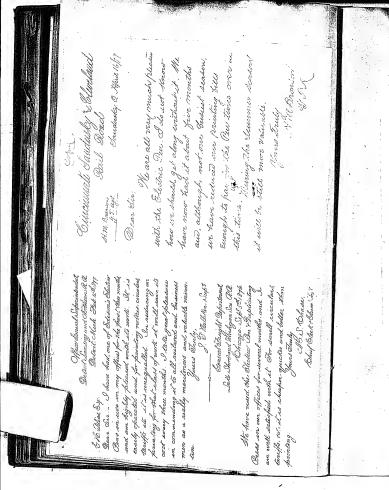
At affires us pleasure to inform you that our facilities at the present time, for manufactiving our apparatus, are of such character that we are enabled to fell orders for any number required In placing our Pen before the Public, it is our intention to adventure as theory offly as may be consistent with own interests, and, in order that that the same may be made effectual and in expension to algerity, it is over desire to submit for your consideration our thours relative to the warmed. Our promous experience warmanis us in stating, that the mode of adventising which has been the most satisfactions, and productive of food results has been to austration liberally among all classes of trade, specimens executed with the Con Throughor we named you horewish samples which we have per paned , which can be estimed on any sone of trade. He propose to formed these on any quantities desired, or he actual cost of labor 4paper, and on addition thereto to place upon each design the addiese of any agent (as per the encloseds.)

Turned so to single your to see all the deligened possible in placing on appearation suggest the Public on your district, as we feel assumed that its ment will receive protons. Ever well greatly factor us by an illiland J.E.S.

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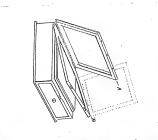
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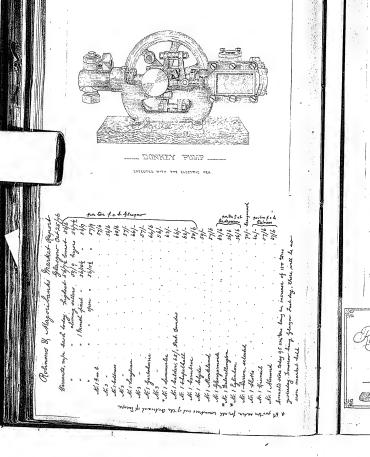
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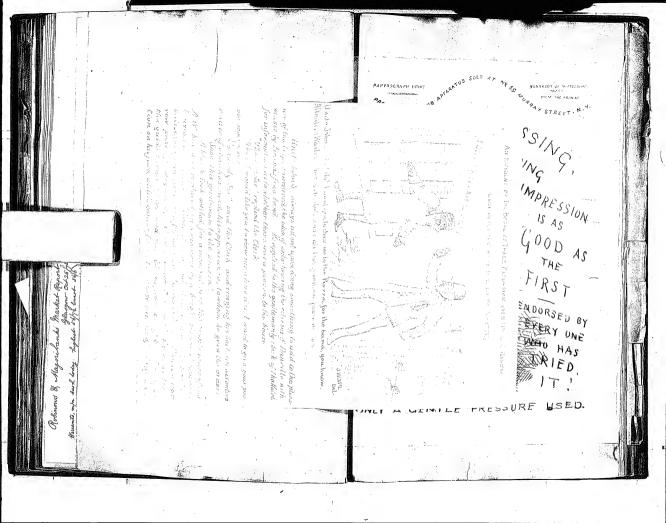
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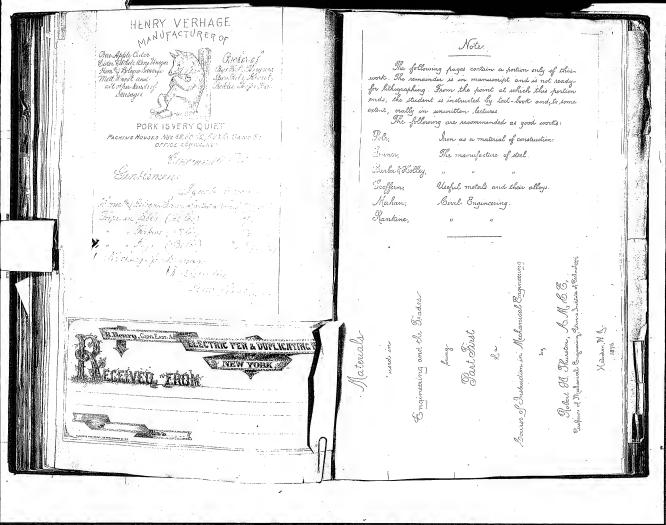
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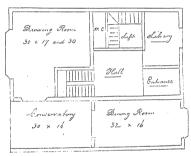
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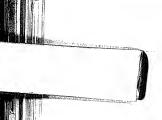
Sample Marked from Suthill Quarry Carbonate of Line Carbonale of Magnesia Proloude of Iron 0.13 Alumina 0.12 Sulphur . 0.09 Thosphore acid Insoluable master 0.08 Mosslure 0.03. This is a remarkably pure sample of Limestone - It is quite suit able for

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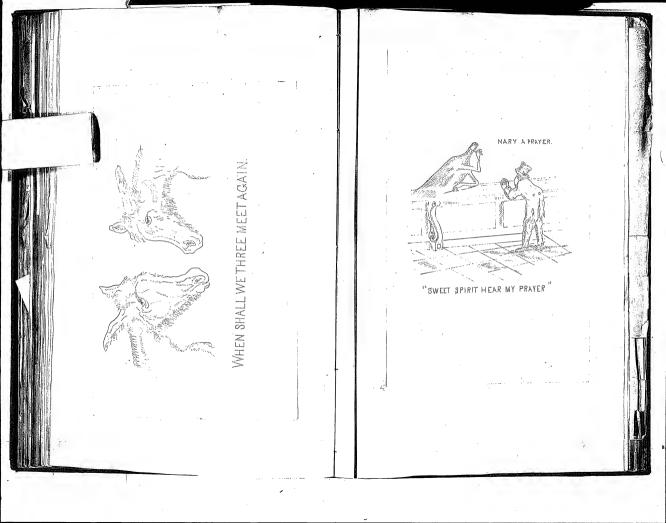
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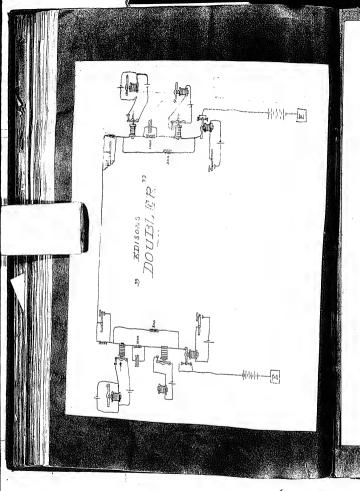
Ao 3. N. Mackened & Shaded in different degrees As 5. The line "Time Havana again "has been shared

The Wards of the City have recently

been substituted in whing precincts and this enterpring agas flow saw the opportunity, for some effective advertising by having the new preciuts on their business coul,

You in haute. A. F. Bladtim

I suclose a cord (6) which has all the lines shall - Doit like it.



Morrise, La, Tuesday Harning, November 6th, 189 Hunderl Firth Filly (3 novers.

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Clocal Stema Look out for the Letter to-morrow with hell election returns. Ten barrelo chaices ap. ples Por sale by M.H. Wright The question now ag-

Samuelanna, Vinginia, Pouth Care. lina, Finne, Lauriana, His. Liserphi, Texas, Misconsin, Lense, and Tievada, Most I them one to elect members

FAMILY GROCERIESE the Legislature and 8 The to select Sovernors. Ensuminger, has received of car lose of coal and is from prepared to billurdon. Oarlen Court met useterday for regular bus.

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Powden to dealers. \$ 7.00 Pon Ken, \$ 200 Jan /4 Kego at Tholans and Key's.

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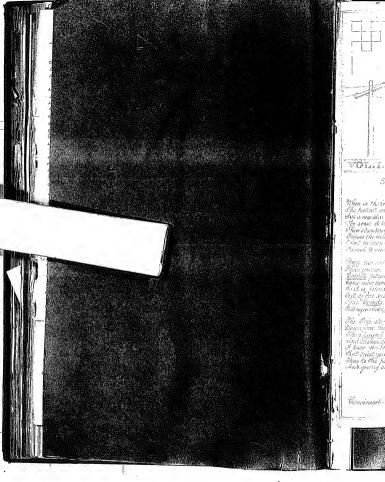
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Single copy. IN ADVANCE

Monday, April 1, 1878



In issuing the Magnet, we hope to throw sufficient current matter in it, to attract the attention and support of a goodly proportion of the fraternity. We. feel that it is something of an undertaking to salisfy every one, in Journalutic matters, but we propose to useevery effort to please, and continue until it comes down to Crackers and Cheese, or until a "Silver dollar of our Waddies" resembles a Cart wheel in magnitude We have decided that the west telegraphic territory west of New York City, needs a journal to represent its interests and doings. Various papers have been established, flourished for a short time, and

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Washadoccusion, ashort time since, to drop in ho see mo & & Chambers, who is a violinist. in reference to participation in the musical portion of our Electrical Society's next programms, he being a member After we re heaved some music with him, he drawers alterition to his new theory regarding Lighten re

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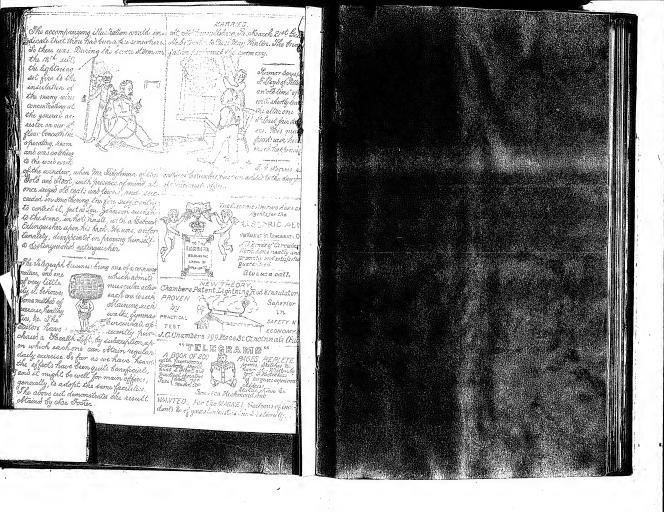
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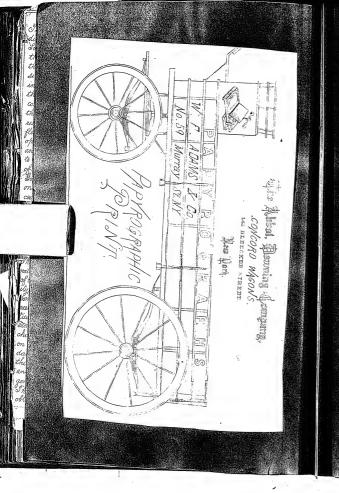


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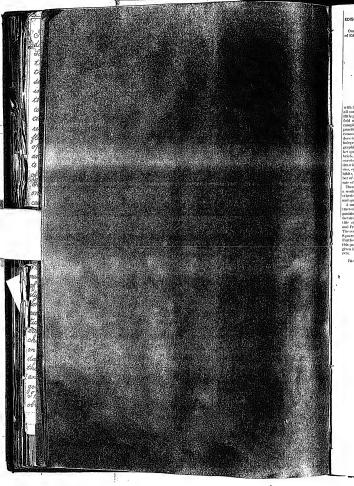
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EDISON'S ELECTRICAL PEN AND DUPLI-CATING PRESS.

One of the most remarkable and ingenious of Edison's numerous practical inventious here-

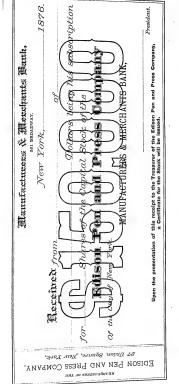


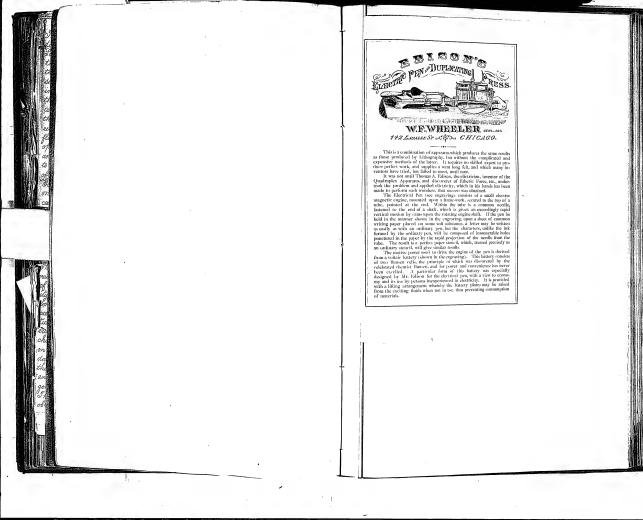
with literature 4 table feety for or endoughnature, and next of written matters. It is a summerful mixture for the endoughnature of the

The American Stationes Fib 15 1876

business inch year some means by which numerous copies of autograph trade letters and circulars could be made from one single writing. Especially was this desirable in issuing price lists, dreuniars, letters, etc. To do this cheaply and at the same time expedithe tube is a common needle, fastened to the paper is placed on some soft substance and and as many copies as may be desired is application or by letter. NY Trade Journal June 17 1376

some means by which tiously, the "electrical pen" was invented, and its inventor Mr. Thomas A. Edison, zoon surprised the country by producing facelimite copies of not only such things as are mentioned, but of lawyer's briefs, legal documents, labels, bill heads, maps, drawings, music, press reports, and in short everything done with a pen which required duplicate copies. The Electrical Pen and Duplicating Press is an apparatus which produces the same results as those of lithe graphy, but not requiring the services of a skilled expert. The "electrical pen" consists of a small electro-magnetic engine, mounted upon a framework, secured to the top of a tube pointed at the end. Within end of a wire, which is given an exceedingly rapid motion by cams upon the rotary engine shaft. A sheet of common writing the pen is held nearly perpendicular and guided the same as the common pen. The needle within the tube is projected into the paper in the shapes in which the pen has been guided, producing what may be termed a stencil. When the stencel sheet is prepared it is placed on the duplicating press taken. These copies are exact facsimiles of the original sheet, the holes letting through and depositing on the paper underneath the ink from the roller. The whole process is so simple and rapid that one who had not seen its operation could hardly believe it possible that such 'perfect work could be done in this way. To merchants, lawyers, and others having occasion to make numerous copies of letters or documents this invention is invaluable. The "electric pen" will be sent out to responsible parties on five days trial, at the end of which time they will be removed if not satisfactory. This invention is well worthy the attention of business men and is really entitled to a high place among the useful inventions of the age. The office is at No. 41 Dey street, where the instruments may be seen and and operated and where all additional particulars may be obtained either on personal





The current from the battery is conveyed to the engine by two wires insulated from each other, and placed in a single flexible cord. thus giving a free movement to the pen.

wires insulated from earn other, and pueces in a single heatile conf, thus giving a free invocement to the pean on oil rows accompanie and paparates. After the stencil has been prepared, it is a very simple anterto to detain a great number of prefer the estimate of the original region of the property of the press above upon the left constitution. The press shown upon the left constitution are represented by the property of the press and having four clamping springs for perfectly smooth top, upon which the sheet to be printed upon its list of the press and secured by a clamping in An inking roller for the security of the press and secured by a clamping in An inking roller for the press and secured by a clamping in An inking roller for the first upon which is put ordinary primer's ink thinned with an oil and lestrating how, is passed lack and nevaral over the held of the or as it times for the fast impression, less with an excellent ones: it is bolder undermost through each look. The and detast if upon the paper the original writing without the possibility of an error, and presenting an opportune of a superior is a superior destribution of the proposal original writing down with an ordinary ten. the original writing without the possibility of an error, and presenting an appearance far superior to writing done with an ordinary pen. The printed sheet is then replaced by a blank one, and the same pro-

The printed sheet is then replaced by a blank one, and the same pro-cess gone through again, and so on until enough reples are detailed.

The simplicity of the whole appetrus, and the results obtained by
the entitle it to a place amongst really need inventions of the
age. Lithography cannot compete with it in the case, rapidity
and cheapines, with which a number of ropies of a letter, circular,
etc., may be prepared for the purposes of onlinary commercial
business.

With this system two hundred copies of an ordinary circular, price list, etc., can be written, printed and mailed within one hour. As anything that can be done with an ordinary pen may be done by the use of this apparatus, it follows that the *Electric Pen* is adapted to the uses of all trades.

Circulure.

It is acknowledged among business men that an autographic trade circular attracts more attention, and is far more effective than one circular attracts more attention, and is far more energise man one printed with type. The former, as obtained by this process, is more economical, and by reason of the ease and cheapness of preparing the original stencil, a great diversity of form and matter may be had. In original secucit, a great diversity of form and matter may be had. In fact a new circular may be issued every day or hour, and a change of phraseology effected at any moment without expense. For instance, a person has a valuable article which he is desirous of introducing to the public through the medium of circulars, and has a large number. printed in the ordinary manner (he must take a large number to obtain them cheap; and finds after a few days that he has left some important them (near) and must after a few days that he has left some important matter out, or that a change in wording will convey his meaning better, and add to the effectiveness of the (ricular); he desires to change it) to do so he is obliged to throw aside his expensively pro-duced meaning and dualization in our quantity reliance, and expensive duced matter, and duplicate it in an equally tedious and expensive manner, whereas by the use of this invention he can issue his circulars as he wants them, and if any change in the wording or form is desired, it can be done in a few moments without expense. For daily

Price Lists and Market Quotations.

It is invaluable, as it allows the circular to be kept open until after business hours, and a few moments before the closing of the mail. For

Circular Letters

It has the advantage that it can be prepared by the principal of the house, thus endowing it with an air of authority and avoiding the publicity of the printing office.

Pomphiat

Where the matter is not too great, are quickly and cheaply produced by this process. While for Aberton, Book axis Trans. Sale

the printers cannot compete with it,

Printers Cannot dispense with it, and no office is complete without it. Com-plicated ruling and blank forms obtained in country printing offices by matalic column rules can be dispensed with. A second sheet, formed of lines, columns, etc., can be made in a few moments by a straight edge and the electrical pen, wherefrom several hundred displicates can be taken, and the lined matter affectional printing in in the foll press. It also gives each job office facilities for producing lithograph work without the expense which the latter entails. By it

Lawyers' Briefs, Contracts, Abstracts and Legal Documents

of every description can be expeditiously and economically produced. It is already largely used by lawyers for that purpose. No mistakes can possibly occur, as frequently happens when the reduplication is done by copyist. It is the only method of preventing error in the duplication of

Preight Tariffs which has any degree of practicability.

Labels, Leiter and Bill Heads, Envelopes, and innumerable varieties of small printing may be done according to the expertness of the writer, thereby effecting a great saving in printing

of various kinds where outlines are only necessary, such as real estate mans for showing situation of lots, etc., of almost any size, are easily

produced in any number. Architectural and Mechanical Drawings

are produced with facility, and tracing from drawings, sketches,

designs, etc., previously prepared in ink, are made by merely passing the electrical pen over the ink marks. While it is not claimed that the fine shading of lithographic, energying can be produced with the pen in the hands of an inexpert, it sograving can be promeen with the pen in the names of an inexpert, it is claimed that for all practical purposes it will produce sketches and pictures by outlines, which is all that will generally be found necessary. Elegant

Bills of Parc

may be produced by an expert pennan and by rapid writing with the pen are made to present an unique appearance. By its aid the composer and arranger of music is enabled to duplicate

of the most complicated character, now so largely done by hand, owing to the cost of reproduction by other processes

Insurance Firms

having the agency for a number of companies frequently require a dozen copies of the same policy made not on the forms of different companies.

The same policy made not on the forms of the different companies. The same policy made not the form of the companies of the same policy forms of the same policy forms. For insurance reports, notices to sub-species from general agents, and the small private printing of the company generally, it is invaluable. For

Cypher Books, Press Reports, Financial Exhibits,

and every conceivable variety of printing, it is obviously adapted, and the experience of each day brings to light some special work among the trades for which it is adapted and which were not previously thought of. For the

Education and Amusement

Education and Amuseument of the youth it is wiven of the variety of work a boy can perform upon it, and not work of the variety of work a boy can perform upon it, and the maps, take copies of their drawings, exapped, exapped, the printing machine is limited to the type fronts, this machine only to the skill and insegnation of the low. Endess amuseum to be considered to the contraction of the low. Endess amuseum to the contraction of the low. The contraction of the low is the contraction of the contract

Directions.

Accompanying each pen is a book of instructions, in which a more complete description of the apparatus and the best methods of printing is fully set forth, with instructions for making the battery fluid, renewing the battery, and what to do in case of accident.

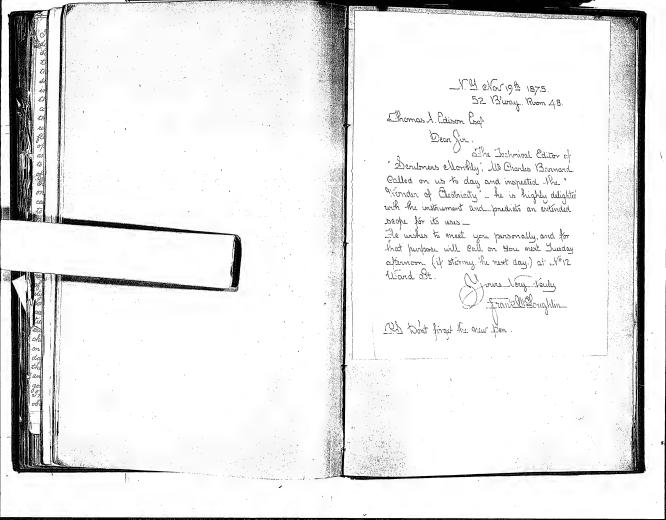
Price.

The price of the pen and apparatus complete (foolscap size), \$35.00. Sent C. O. D. by express or on receipt of money order.

Information may be obtained at the office of W. F. WHEELER,

General Agent,

142 LA SALLE STREET, CHICAGO, ILL,



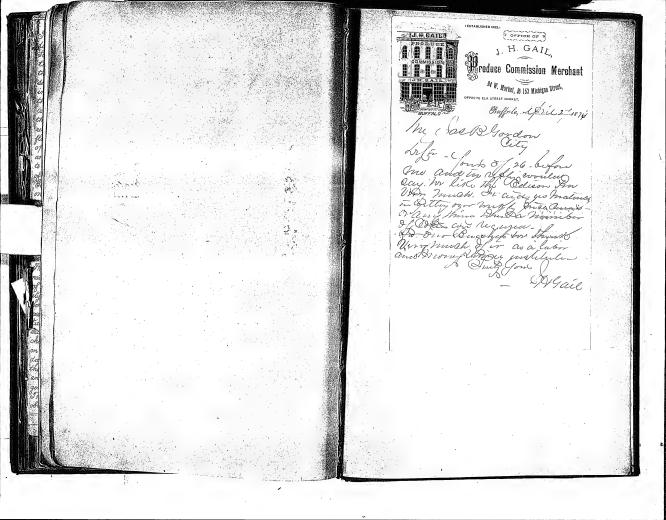
GREAT CENTRAL ROUTE CHEARBATT STREET CHERRY DEFERRE Rechester. 14 May & 187 6 Moura Nocheva Lonveners Universely Lendlemen; The Chebric for Amchand of you last monet has been in actual acre senochal lune, and That pleasure in Vary ing Chat it is in Estry Junde piace lival, and for any wants Inpplies a need long felt In producing a print any regions muniter, it is the most descrable inten how that my attention has been Called to and I brust it approvation will be sale factory lithe instalu, in large and Erminication Jules Yours landy Sni. B. Kawan

\$t. Mary's Church, No. 87 Washington Street, Alleghony City, Bu, April 27 1876. De The Signid.

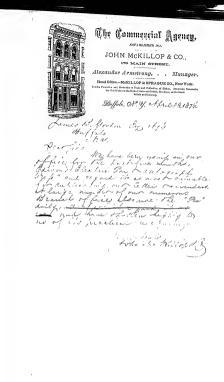
Det of the Central Spitnes of the Menting Vetegraph 62. Central the Menting Vetegraph 62. Central the Second Vetegraph 62.

Dear Sir;

Me Clictric Ven, purchased through year Agency in 1876, hard 1876, has been correct considerably since; and one of the me Complete Success have found it to be a Complete success for multiplying writing to the number of about onchandred Copies Jour's truly Pordinand Moss Reter of Sa Band Church, Alleg humberty, Pa



J. L. ALBERGER & CO. PORK PACKERS, Wholesale and Jobbing Dealers in Smoked Meats, LARD, PORK, REEF AND DRESSED HOGS, Office, 12 Exchange Street, Kunci By Jodon Eg - Buffalowy Mchace and The Edina Electric Row & Profo in out busines, for se le a Comonthis The consider it a very weeful unation, applicable largerange of acesit to the furera ble consideration of the busines community



Distriburgh Filmary 28 24 576 the Electric can and fact to our other setting -tion, and find that It fulfils all that was promised for it. Programme action of the South Stand The manifestate resource on the corn. Markey Martines Symmes.

Scrapbook, Cat. 1134

This scrapbook covers the period 1875-1879 and contains slippings and the properties of platinum and related metals, Edion's search for a cheap and abunch platinum and related metals, Edion's search for a cheap and abunch self-son's proposed method of recovering gold and platinum from black sands. Approximately 50 pages of this unnumbered book have been used.

Although it lacks the characteristic volume number, this scrapbook is identical in physical appearance to the Menio Park scrapbooks begun by William Carman and Francis Uption in 1878-1879. It may at one time have been considered part of that series. (See Menio Park Scrapbook Series.)

Platinum Group Etc.

NEWARK 1806 BIXIEST & BLAXE 1806 BIXXUFACTORY, JOB & MERCANTILE PRINTERS. WILLIAMS & PLUM,
777 Broad St. Nowark, N. J.,
STATIONERS and BOOKSELLERS,

MERCANTILE PRINTERS, HOOK HINDERS, CLASS BLANK BOOK MANUFACTURERS

No. 8, August 23; 1875.

No. 5. August '23; ityy

Compound to the Purple of Castrian (Pristine Streets). Only on the Purple of Castrian (Pristine Streets). Only on the Purple of Castrian (Pristine Streets). A Forest — It is stated in Persistant on Obligation and A. Mersat.—It is stated in Persistant on the Purple of Castrian (Pristine Streets). On the Purple of Castr

That prepared by immersing metallic tin in the bichloride of platinum gave, when dried at 160° C.,—

Personate of an Ingot of '250 kilogenames of planinidation: cast at the Conversation' of a first of planinidation: cast at the Conversation' of a first of the Conversation' of the Conversation' of the Conversation of the Conve

mode, and finally three injects of about \$3 kilos each were needed.
Analysies showing 1033 of irilliam instead of to per each, \$3 kilos, of pure platinum were added in the final control of the period of the control of the control of the minutes, seven compound blooptipes being used, and 31 cats in of oxygen and 24 cuts in a street gas. For fining, therefore, 100 kilos, of a mixtury of irillo-plati-ium, containing 10 per cent. Fellow, are regarded 12-27 cuts in 60 xygen and y 53 mix in of street gas. The legal vas of count to be presentably partect and

CONDENSATION OF AIR ON THE SUBPACE OF PLATINUS.

In connection with the subject of weighing 1 would add the following observations

of mine on platinum vessels. After taking the weight of a clean platinum vessel, then wiping it thoroughly with a dry rag or soft paper, and replacing it on the pan of the balance, it will be found to have lost weight; if of the ordinary size used in quantitative manipals, it will be found to have lost two milligrammer or more. If allowed to remain on the balance for fifteen or twenty minutes, it will be found to have recovered its weight. This change has usually been attributed to moisture; but I have clearly established that this is not the oase. The following is the result of some accurate experiments:

A new flat-hottomed capsule, four centimetres in diameter and two centimetres deep. having about fifty centimetres square of surface inside and outside, was first thoroughly clemed by boiling in a solution of caustic soda. After thorough washing in distilled water, it was heated to redness, allowed to cool-and in one hour weighed. It was now taken from the halance and wiped with clean filter-paper, taking care to touch, as far as possible, all parts of the surface, without using any violent friction. After being as possible, an paris of the surface, without using any violent division. Area using submitted to this operation it was replaced on the balance, and it was ascertained to have lost two milligrammes, and after being allowed to remain for twenty minutes its

original weight was restored.

The vessel was now transferred to a drying-receiver over sulphuric acid, and
allowed to remain sk honex; placed on the balance, it weighted exactly what it slid
where placed in the drying-receiver. It was now whyel as before, and on being
replaced on the balance had lost 2 milligrammes, which it recovered, as before, in the original weight was restored.

The vessel was now transferred to a receiver in which the air was saturated with teen or twenty minutes. Thus vessed was now transferred to a receiver in waters the air was studied with implient from veil pupier, hinced on the glass support. After six loans the cassiste was placed in the lealance, when it was found to weight just the same as it did when it was introduced into the molst atmosphere. A dry atmosphere or a moist amos-phere was then shown to have no effect in producing this temporary loss of weight place was then shown to have no effect in producing this temporary loss of weight

From these experiments it shows very clearly that there is air condensed on the in the consule. surface of platinum that a little rubbing will remove; but it will soon return to the platinum after this freatment. The importance of this fact will be manifest to the malytical chemist, and make him cautions about taking the tare of his platinum vessels too soon after wiping them.

有關於於於於

• Platinum.—Although this metal, from its peculiar physical properties, is available for numerous purposes in the arts and manufactures, it does not yield many releved combinations, and on occount of its expense is

seldom employed by artists, Platinum was first discovered in 1741, and is no ound in Brazil, Peru, the Uralean mountains, and in small quantities in the rands of the Rhine. The exide of platinum are of a black or gray character, but by the addition of the alkaline and earthy salts to solu tions of platinum, we form triple compounds, which are renerally of a vellow or buff color. Some peculiar platinum yellow was introduced to the artists, but though very permanent, it was not superior to other pigments, and the chromate of codmium now supplies itplace. A very fine and peculiar yellow is made from platinum in the following manner: take a solution of the chlorid of platinum and add a sufficient quantity of thus water to render the solution perfectly neutral, and then in the dark give a slight excess of lime to the politure; place the solution in a clear glass bottle in the sunshine, and gradually a yellow powder will be precipitated, the quantity varying with the amount of light to which the solution is exposed. This color is

unchangeable under the influence of either the light or i heat of the atmosphere.

A gray, used in ornamenting porcelain, is prepared

as follows: Mix together one part of powdered platinum with three parts of minium, one of sand, and one of horax.

All the metals which ordinarily accompany platinus possess similar excellent qualities, and fine useful colors are made from palladium and rathenium.

are anole from politicism and ratheraum. The mode in which finely divided platinum is perpared, is by decomposing the aumonia chlorid at a red heart; the resident is a very persons and has slightly exherant panage. To make it still finer, some sea sait is mixed with the yellow sait, the first being afterward washed out with builing water. In this state the metal is of a fine black, and its

tal is of a fine black, and is of the stimost permanency. The haster of platinum is a concentrated solution of the metal roune countial oil of lavender; this rotation is washed over the porosidal, which is then exposed to a strong heat in a smaller, when it soom enquiers a fine metallic laster, which and must of being heavily burn units of being heavily burn units of being heavily burn.

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aished. The French vases, which are platinized by a process similar to that above described, are of considerable beauty, and have the advantage of the mero silvered ones by reamining un-

translated for many years. Ginze is platituded by prediction, in an analysis of the prediction of the state of the prediction of the state of the prediction of the state of the prediction of Tridium.—This is one of the metals commonly found with platinum, and which possesses many eleminal and physical properties in common with platinum, palladium, nomina, and rheddium. The exid of iridium is used in pulnting in vitrious colors; the metal is of a



very four gray, but its eath produces a back for superfer on ay of the microl blacks focus. The advantage is that it is not decomposed at a charry-loca, a a which-clean bower the cold of billion locus its exygen, and if placed in context with any hydrogen or hydrocardon, the mass detonates with violence. It forms with risodium what is railed the articles of the hydrocardon with the context of the context of the state of the context of the context of the state of the context of the context of the state of the context of the context of the state of the context of the context of the state of the context of the context of the state of the context of the context of the state of the context of the state of the context of the state of the context of the state of the context of the state of the context of the state of the state of the context of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of state sta

us we have mentioned on a former occasion.

Reduction of Platform,—Dr. Q. Valpiers.—In strengthing to releave platform from schörpfeldinder of summaring by the region of the platform from the platform from the region of the regi

On a compound of platfaum, the and oxygon, analogous with the purple of cassing—II. Dehechanal and A. Merono.—This may be made either by mixing behilder of platfaum with protochloride of the, diquring with water and holling, or by theiring a plate of it in a solution of behilderies of platfaum, and treating as about of it in a solution of behilderies of platfaum, and treating as about of preparation varies according to the mode of preparation.

Decomposition of water by platform.—St. Olare Devitie and H. Delawy.—When cyanide of potantine, success this appropriations, the leave of contrastine, success this appropriations, the leave of vater-gas leave into or in depression of the contrastine of the contrastine contrastine contrastine of particum and particular contrastine. In the propriation of particum and particular contrastine forms. The resultions which they have may be approfered to the contrastine of the contrastine forms. The resultions which they have may be approsent to the contrastine of the contrastine forms. The resultions which they have may be appro-

ted thus, KCN+2H₃O = CHO₂K+NH₃ 2KCy+H₃O+Pt = PtCyKCy+KHO+H 2KCy+H₃O+Pt = K₃CO₃+2NH₃+H₃+CO₄

A de

RECOVERY OF PLATINUM WASTE. In a paper recently read before the Berlin Chemical Society, Knorel describes a lin Chemical Society, Knosed describes a simple process which in has employed very successfully in the recovery of plat-inum from residues, and its conversion into platinic chloride. The platinum precipitates are placed in a percelain cupsule along with caustic or curbonate of potash or soin, and heated on a water billi, The alcoholic wash water is then gradually added. The reduction takes place rapidly, and the spongy metal settles to the bottom. When the liquid become almost coloriess the reduction is suced. for organic substances prevent, its becoming entirely limpld. It is washed with boiling water, first by decantation, afterlonger shows a chloring reaction with silver, and is finally dried and ignited. The metallic platinum is boiled in hydrochloric acid to free it from Iron, copper, or other impurities, and then dissolved in aqua regia. This is best done on a water The platinic chloride is emporated to dryness, and again dissolved in beiling water to remove any nitrous acid present. Finally, the solution is bleached in direct sunlight.

How can I deposit a thin cost of platinum on metal by a plating process? Can I got it on as a wash, after dissisting in clinic constitute call? A. Now best incomment of the control of th

manager. A 280 plantage ware ownered with the late positive pole of the battery is placed so as to dip late the solution; the object to be plantated in placed by a wire in connection with the site or negative pole, and also placed in the solution. If the battery to not too strong, in a few mituates the object will be chatted with platfulum.

Platinum and Iridium.

MM, Saint-Claire Déville and Debray have succeeded in preparing platinum and iridium in a state of purity hitherto unattained. They prepare platinum of a density of 21°0, and iridium of the still more considerable density of 22°4. Alloys of these metals have a greater density in proportion

Alloys of these motals have a greater density in proportion to the amount of iridium present. With 00 per coat of platinum and 10 of Iridium, the density is 21-6; it reaches 22-38 if the iridium form 00 per coat of the whole.

Prov. Bustrezz has lately described a new method of platinum.

Punt. Burrama has bailed interficiols a sew method of pictilization, there a marks. The correlate breeders shalloud light states a marks. The correlate breeders shalloud light states a marks of the control breeders and the control breeders are being a market of the control breeders and the control breeders are being a market of the control breeders. The said has been been present to the control breeders. The said has been been present to the control breeders. The said has been been breeders and the control breeders are been breeders and the control breeders are been breeders, and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders and the control breeders are breeders and the control breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control breeders are breeders and the control bree

Soldering Platinized Glaza—Dr.W.G. Rinigen—The platinized glaza is well cleaned, slightly beated to prevent beginning to the platinized glaza is well cleaned, slightly beated to prevent platinized glaza from glaza, platinized glaza from glaza from the platinized controlled glaza from the cleaned glaza from controlled glaza from the cleaned glaza. When the glaza is the glaza from the glaza is then the glaza from the glaza f

Bullenium and its oxygen compounds—Davilla and bullenium and its oxygen compounds—Davilla and bullenium and the state of t

The second Remarkable Discovery of Platinum Remarkable Discovery of Platinum
A remarkable occurrence of platinum
has been discovered in some Mexican minemis by V. Fernandez, who read a paper
upon the subject before the Society of
Natural History in the city of Mexico,

some the subject between the wheelfield Schromi Bleety in the dry of Batton.

The mineral, which were found sear the subject of the subject o

BRIEF METALLURGICAL NOTES. PLATINUM.-Enormous deposits of this valuable metal are reported as having been found in the State of Morelos, mining district of Tacala, Mexico.

Wanted, Platinum Mines.

Wanted, Platinum Mines.

It is announced that Iv. Editon, Juving found the precess supply of Justimen to small to insure the groupers and success of line describe flamp, in a few proposed and traces of line describe flamp, in a proceed of the educoracy of Justimen mines. The crises and price information in the chemortee of Justimen which it generally in obtained, ed., together with specimen of pilitimen and Infoliation gravitable upon and statelled to eash. We fear this search form the statelled to eash the statelled for the statelled to eash. We fear this search formity minables to staimfulse search for mines, but as yet few and small quantities have been discovered.

PLATBUR,—We have been shown a letter from T. A. Edison sucking imprilies about pits from T. A. Edison sucking imprilies about pits from T. A. Edison a subseq imprilies about pits from Mr. Edison's of curren written with an electric post. The control is a subsequent to the control in a subsequent pits of the control in a subsequent pits of the control in a subsequent pits of the control in a subsequent pits of the control in a subsequent pits of the control in a subsequent pits of each an state. It is found a transact. The unceptured instead represents the control in a subsequent pits of the control

ACTION OF SULPHURID ACID ON PLATINUM RETORTS DURING CONCENTRATION.

NOTE BY M. A. SCHEURER-KESTNER, PRESENTED ACADEMY OF SCIENCES, PARIS, BY M. WURTZ. Translated by W. M. Habirshaw, F.C.S.

A. W. Hoffman, in his report on the London exhibi A. W. Homman, in his report on the London exhibi-tion of 1862, mentions some experiences which I had-communicated to him on the deterioration of platinum alembics used in concentrating suphuric ácid. Since then I have continued my observations, the results of which I have now the honor of communicating to the Academic

The action of subbarie seld on the platinum varies of the Control Academy. atinum retoris do not last as long as formerly.

We can ask ourselves if the observed deterioration is due to a simple mechanical action, or whether the plati-

due to a simple mechanical action, or whether the plati-num is really islandered?

The following experiences reply to the question:—
The presence of the lower acid compounds of nitrogen
in the liquids, coming from the lead chambers, greatly
flowers the gladestion of the platine, in one for two controls
for the control of the platine, in the control of the control nary concentration-that is neid, from 93 to 94 per cent.

There has then disappeared, during this operation, #859 of platinum to each 1000 of acid.
The acid introduced into the alembic was contami-

nated with nitrous exides.

In order to destroy these compounds, I employed sulphate of ammonia—as advised by Peleuze—for pari-

sulphate of ammonia—as advised by l'elonze—for pari-lying the acid.

The dissolution of the platinum immediately de-renseed and the next year the amount dissolved was 2*490 for a production of 1,33,3000 kilogrammas of acid, being it-200 of platinum for 1000* of acid.

Daring the following years the acid used in the alembic contained sulphurnoss acid. It was free from

almalic cominion subpharons soid. It was free from the interest companies, which is a soil production of the interest companies. The interest control is a soil production of the office of the interest control is a soil production of 15,55 (according to a soil production of the interest control interest control interest control in the interest control interest control in the interest control in the control interest control interest control interest control in the interest control in the simple control in the interest control in t

the exist on the platform.

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AMER. CONSIST, P. d on Platinum Retorts.

A second septiment, made on an equivalent quantity, gave 6r-650 of platinum per 1000¹⁴. When acid holding 99 it 10 95 per cent. of monohydrated acid was prepared, the platinum dissolved reached from 8 to 9 grms, per 1000 of acidit; for a production of 100,000 kilos of acid of 90 jer cent, the best was 80 it 100 grms, per 1000 of 100 grms, per 1000 of 100 grms, per 1000 of acidit; for a production of 100,000 kilos of acid of 90 jer cent, the best was 80 it grammes of platinum, being 80 444

per 1000.
This quantity of metal being appreacing to make it possible to recover by quantitative analysis, I on it possible to recover by quantitative analysis, I on the possible to recover by quantitative analysis, I on the possible to the possible to the possible to the possible to the possible to the possible to possible to pharter acid of 993 per cent; 73*600 of this acid was allited with varies, a current of subjective told-planted variety of the possible to the possib

characteristic color of the salts of pintinum as wetl as their properties.

The platinum was finally peccipitated in the state of ambibile and weighed after calcination. There was obtained or 617 of metallic platinum, being 80% por cool of metal, a number which accords completely with the vessits obtained from the industrial observation.

These numbers, the preceding as well as those following, apply only to the beller. The accessaries, as the "head," "siphou," site, its distinished to weight, which will be noticed further on. I is the oblimation of the weight of the platous spaces of its the distinuition.

From these experiments may be drawn the following rat. The loss in weight of platinum distilling ressels not due to a simule mechanical action of the acid in is not due to a simple mech

When the neid employed is exempt from nitrons compounds, it dissolves nearly 1 gramme of platimum each 1000 kilos of sulpance acid concentrated (2).

reach too chiles of valpourize and conventrated χ_{k} . It is indicated to 2 grammes of it when the concentration is curried to χ_{k}^{*} , and 9 grammes when said $\phi(p)$ great g(p). When each belong ultruss component is intro-tated in the apparatum, the model in inhead value are action of subplants, each under belong the con-cention of subplants, each under belong the model and the other of the contract of the contract of the subplant of the contract of the contract of the con-tract of the contract of the contract of the con-tract of the contract of the contract of the con-tract of the contract of the contract of the con-tract of the contract of the contract of the con-tract of the contract of the contract of the con-tract of the contract of the contract of the con-tract of the contract of the contract of the con-tract of the contract of the contract of the con-tract of the con-tr montis & Quennessen, the

num of Paris since 1857.

The pure platinum capsule lost 1966 per cent, of its weight, whits the other heat but 888 per cent, but the Irishian metal is more fittle time in the prey platinum, and to this debertment of a tributed the abandonment of it for the construction of distilling research, notwith-standing the fact of its excellence in other particulars. 36 New Street, New York.

New Alley.

M. Phillips has made some experiments for the determination of the coefficient of elasticity and of the limit of clasticity of different lodies. He refers especially to a new alloy which was melted and east by Matthey, of London. Its den which was merica and cast by statemy, a passage in the terminal set of the freezing point is 21-6139. Its composition is: Platinum, 80-630; iridium, 19-670; rhodium, 192; from 988; rathenlum, 440. This alloy is so malleable and duetile that M. Sainte-Claire Derille possesses a thread, of it, which is only a few hundredths of a millimeter in diameter, and is scarcely visible. A hundredth of a millimeter is only axion

TRATINUM COMPATION/TURES.

In abidiple system of organic analysis glass commercial recording records records. In the control of the control o PLATINUM COMBUSTION TUBES.

a chance that it may either crack or "now out "during igoition.
If an analysis could be performed in a few minutes an unantisfactory result would be of trifling moment; but when the time spent over an analysis is remembered, a defective combustion means the loss of some hours' labour.

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Una natische, and a averan of nitrogen passed through the natische and a result of the natische and the

will represent the amount of O present in the substance analyzed.

With a platinum the filled with capric code in the meaner above described it would be possible to preform a manyer, the present conomising time. This arrangements apparatus is based on purely throet-tical consideration apparatus is based on purely throet-tical consideration apparatus in opportunities of practical considerations there. C. I. H. W.

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Comptes Rendus Hebdomadaires des Séances, de l'Academid des Sciences. No. 16, October 13, 1877.

Art Science. No. 16, Odober 15, 1877.

Non-Transparence of Incandescent Iron and Platinum—O. Govi—In a paper in the Compter Reades of Stiff (1887), p. 731 is found an account of a series of experiments, according to which iron, even of the thickness parameters, according to which iron, even of the thickness parameters, according to which iron, even of the thickness reads. The author seeks to connect the transparence may be a series of the connection of the series of the ser

mentally that iron and platinum, even in thin layers and heated to whiteness, are impervious to light.

Accousing to E. Reichardt a new platinum retest for collectivity supplies and was found to be of crystalline bexture, very lettite, and be have several energies. Analysis showed its compastion to be platinum 18430, copper 0473, lenn 9014, silicon 9030; and the silicon being in shoot the radio to the platinum of 1 to 3000, is supposed to be the cause of leftitions.

Silicide of Piatinum.—A. Guyard (Hugo Tuum).— The experiments of Winkler, whereby he obtained a silicide of platinum to which he accipand the formula PUSI., are slightly modified. A substance is obtained which corresponds to the formula PUSI.

DRAWING PLATINUM WIRE M. A. Garrez finds that if atmospheric dust is carefully excluded during the operation of drawing platinum wires, the wire is more tenacious. Specific Heat and Melting Point of Platinum.—M. J. Violke.—The mean specific heat between of and 1177 is could be melting point is probably a little below

On the use of platinum in the combustion of organic compounds.—Perdinand Kopfer.—Spronzy platinum is made use of to facilitate the existation of the substances to be analyzed. The existation is effected by heating in a current of exygen. The opparatus employed is fully described by the author.

On Certain Compounds of Platinum.—D. Cochin.
—The nuthor has obtained a diplatino-phosphoric chloride
of the formula PGL₂(P(Cl₂)). He ina also formed com-pounds of the subciliorides of platinum with aniline and oluyin analogous to the green salt of Magangs, and has combined aniline and toluyin respectively with the ethylic and methylic diphospho-platinic ether.

METALLIC OSMIUM. 1676

METALLIO OSMUM. YÉ 7c.
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Preparation of some Platinum Compounds—J methods of relatining the following compounds pera antile methods of relatining the following compounds pera antile to relating the following compounds pera antile to relating the production of the statement of the period of PULIs in Pollowinders and it adminest by adding a con-tract of pressures independent on the restriction of the tensor of pressures independent of the method of the tensor of pressures in the period of the period of the tensor of pressures and period from this contract galaxies, the cholespotation, an addition from this contract galaxies, the cholespotation of the period of the period of the woundy change and the period of the period of the woundy change and the period of the period of the woundy change and branch of the period of the wound of the period of the period of the period of the wound of the period of the period of the period of the wound of the period of the period of the period of the period of the period of the period of the period of the period of the other period of the peri

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CH: No. 726. FEB. 21, 1879.

DEPOSITING PLATINUM. DEFOSITION PLACETURE.

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MAGNETIC NATIVE PLATINUM.

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Copper, a metal invariably present in small quantities in meteoric iron, is an equally constant constituent of native platinum.

M. Divinez has food that, on onlying platfielding, the first control of the property of the pr

COATING IRON WITH PLATINUM .-- M. Dodé of Paris, the inventor of platinum mirrors, has patented a pro-cess for this purpose in England. The iron article to be coated is first brushed over with a compound, formed by mixing 22 parts of borate of lead and 41 parts of cupric oxide, in oil of turpentine. Over this is laid the platinum compound, formed by converting 10 parts of platinum into chloride and mixing this chloride with 5

parts of other, which is then permitted to evaporate in the air, the residuum being mixed with a viscid combination of 20 parts of horate of lead; 11 parts of red lead; and some oil of lavender; and 50 parts of amylalcohol is added to the whole. This compound is applied by dipping the object into it and allowing it to dry in the open air, then heating it to a moderate temperature. After TF

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New Compound of Palladium—H. Salate Chie Deville and H. Delevy—On heating a substee of pallacing and the property of the salary and the pallacing in course of the control

(20 J. D. writes: We offer to know that this has ten sent for expering each and pictical with the lab was ten sent for expering each and pictical production and the (12) J. D. writes: We desire to know | all the metaline been precipitated dry, and fore it in a small shallow line crucible by means of the exy-lydrogen blow pipe.

ON THE PROPERTIES OF RUTHERSHIK—In the same journal an account in given by Means. St. Chira-Dwilling and II. Delaway, on the Payloria and desirant properties and in Delaway, on the Payloria and demand properties could in 1962, thus differing from combin. By fasing the coile live, thus differing from combin. By fasing the carriers of the gas at about 80°C, they chiral the term-themists that free which the contract of the gas at about 80°C, they chiral the term-themists that free which they will be the same paylor than the term of the same paylor of the same p

PLATISHATION OF IRON—A number of persons interested in the subject streaded on Satur-day Inc., by the invitation of all. Dark to winners a demonstration of all scale of the sub-tion of the stream of the subject of the subject of the subject of the subject of the former to subject. As the process has been leading fully described in our colours fore favor, which is plat fainteen detail in our numerously but it may be stated but the core and process to the subject of

Extraction of the Plattinum Mexisis as Parollized InGerman Refuneties.—M. Opinisas.—The ferrice chineties
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March 1s, 1515. Chemical Notices

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num in such a state of division as to mable it to be empt as a precertaine against the oxidation of metals, whereby a considerable saving is effected, as compared with the systems at present in use, and much greater efficiency is ubtained.

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PLATINUM BLACK -- A rendy method of pre-paring the metal in a form which exhibits unusually active catalytic properties has been described by R. Bisteer. He adds to a solution of platinum chloride sufficient seignette salt (potassium-sodium tartrate), and heats the mixture to the builing point; a brisk evolution of earbonic acid takes place, and in a very short time all the metal sepa-rates from the solution; it has then to be washed and dried at a moderate temperature. The finelydivided metal prepared in this way readily converts alcohol into aretic acid, and ignites illuminating gas when placed in contact with gua-cotton. PCRE HYDROREN. — According to the Bulletin of the Chemical Society of Paris, hydrogen may be

purified by passing it through the following solu-

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SOLUTION OF PLATINUM IN SULPHURIC ACID. By M. Scherman-Kestner. 79

In y M. Semerann-Kerston. 74

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MENDING PLATINUM CRUCIBLES, &c. By THOMAS GARSIDE, F.C.S.

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Sc. Am.

Остовек 6, 1877.]

Interesting Pacts about Metals Patinum, the densest of the ordinary metals, p also one of the highest points of fusion. The metal fuses when exposed to the heat of the oxyhydrogen blowpipe. When in the state of very fine wire it may be melted into small globules by the heat of an ordinary mouth blowpipe, and is quite readily fused in very small quantities by the aid of a hot blast aupplied to an ordinary Bunsen gas flame. Platinum belongs to the class of metals which soften before they attain perfect fluidity. This peculiarity gives it the valunble property of welding, or the uniting of surfaces without the use of solder, and enables the finely divided metal, technically termed the metallic sponge, to be wrought into a solid and compact bar. Platinum is not known to be volatile, though perhaps, at sufficiently high temperatures, it, in common with all substances, would be vaporized. Platinum does not combine directly with oxygen, and therefore would not be wasted during the process of melting.

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The temperature of fusion of pulledium has been deterible bloom as solid ploved qualisation as sure to the motivar point as possible, plunging it into a substitute, the motivar point as possible, plunging it into a substitute, the analysis of the point of the point of the point of the analysis of the point of the point of the point of the 2.3 by bording a mass of plasman by the side of a most of pullsham and as one the pulsation made, but not all, the states, these temperatures being in each case determined, the states, these temperatures for the point of pulsation in the states, these temperatures for the point of pulsation in format to be 1,200°. It is non-worthy that guilland the temperature successful before 1,200°. The words of the temperature successful before 1,200°. The tail below of fusion according to the mean of the early the buildening two-this time, the quantity of buildening two-this validation from 0 to 1,200° and the contract of plasman of "substitute from 0 to 1,200° and the contract of fastion of pietral point of the point of the point of the point of the point of "substitute from 0 to 1,200° and the point of fastion of pietral point of the point of the point of the point of the point of "substitute from 0 to 1,200° and the point of the point of the point of the point of the point of the point of the point of the point of "substitute from 0 to 1,200° and the point of the point of the point of "substitute from 0 to 1,200° and 1

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"Seamon".—" Enquirer " will find his query (No. 2364), on the determination of silver is plating solutions, fully answered in the corrent number of solutions, fully answered in the corrent number of quoted here; but I inches a copy of it to the bilties, and hepe he will ref fit to reperin it in another part of the puper. (Vale p. 185.)

Sheffield. Alteen I. Alteen I. Alteen II. Alteen I.

PLATINUM, HYDROGEN, &c. PLATINUM, HYDROGEN, &c.
[12806.]—RIENO at the bease of a friend in
Manchester the other creesing the conversation turned to the means of distinguishing in a rapid and simple manner, without laving recorne to any liquid test, between silver and platinum. Dr. George Frest, a dentist, of Posileton, showed car, which, for simulative and deltarer, jewes situl to be George Frein, a desirted, of Postellerino, Asternal com-cellerinos, a desired, of Postellerino, Asternal com-ference and the property of the postellerinos and the com-position of the state of the company of the com-position of the state of the company of the com-tent of the state of the company of the com-tent of the state of the company of the com-tent of the company of the company of the com-tent of the company of the company of the com-tent of the company of the company of the com-tent of the company of the company of the com-tent of the company of the company of the com-tent of the company of the company of the com-pany of the company of the company of the company of the com-pany of the company of the company of the company of the com-pany of the company of the company of the company of the com-pany of the company of the company of the com De Am.

MADADA

PLATINUM APPARATUS.

THE great exposition has brought out some facts regarding the nature and extent of our manufactures which will be new, not only to our foreign visitors, but to a large number of our own citizens. It is shown by the exhibits that fabrics, machines, apparatus, etc., are produced here in large quantities and in great perfection, which were supposed to be produced only in the older countries of Europe. In looking about the building we were surprised to find a case containing a large and excellent assertment of platinum vessels and implements, adapted to the wants of the chemist. From the attendants we learned that these platinum wares were made in Sugartown, Chester County, Penn., by Mr. J. Bishop. A careful inspection of these articles showed that they compared favorably with those made in Paris or London. It was indeed a surprise to learn that such a manufactory had been established in an obscure town in Pennsylvania, and that we need no longer order the indispensable tools of the chemist from abroad.

Platinum is a rare and expensive metal, and very difficult to manipulate or work into desired forms. When it is understood that the heat of our floreest furnares fails to fuse the metal, and that its manipulation is accomplished only by the sid of the oxylsydrogen flame, some of the difficulties involved in forming it into capsules, retorts, etc., are comprehended. We have visited the workshop of the largest platinum manufacturer in Paris, and were exceedingly interested in watching the processes. It is a pleasure to know that the wants of chemists can be fully met by platinum wares supplied by American artisans.

PLATINUM PICTURES;

Mr. W. Wills, Jr. rout a pupe or a New Process of Photo-Chemical Printing in Meeting Egittom. It is a fast of the Chemical Printing in Meeting Egittom. It is a fast of the Chemical Printing in Meeting Egittom. It is a fast of the Chemical Printing in Meeting In the Chemical Printing International
Остовек 19, 1878. o. 146.

photo-chemical process, giving permanent results of any practical value, in which the particles of piguent forming the picture are embedded in and enjangled among the flors of the paper on which they are printed, and do not depend for their adhesion on the use of any sizing material.

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On the Metallurgy of Platinum and Sc. Ross Eridium.

of the platinum group are so rare, and the infor mation given in text books so meager, unsatis factory and superannuated, that a brief descrip tion of present practice will be welcome. This has been furnished recently by Mr. George Mathas been furnished recently by Mr. George Mat-they, of the fances platinum smelling and ma-ufacturing firm of Johnson, Matthey & Co., of London, in a paper read before the Repal Society. According to this—probably the best authority living—the commorcial platinum is Incoden, in a paper read before the Broyd Scoticty, According to this—probably the best Scoticty, According to this—probably the best Scoticty, According to the probably the best Scoticty, and the scotic s

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BUTTE COUNTY REGISTER.

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FRIENCE (PLENTING PRI FRIDAY EVENING, NOVEMBER 14, 1879

A

Weekly Mercury Butte Co. Cal. Miliers, Attention! Major Frank McLaughlin, a scientific gen-

Thanky Marcury, Froville , Ball november 14, 1879.

'ifed McLaughlin' to make contracts with time phietopia mining coimpanies with a view of phietopia mining coimpanies with a view of parting his plan in operation. Through the skindness of Mr. McLaughlin was exhaulted to the parting of the parting of the parting of the parting of the parting of the parting of parting the parting of the parting of the parting of the parting of the parting of the parting of the parting of the parting of parting of the parting of the parting of the parting of the parting of the parting of the parting of the parting of the parting of the parting of parting of the parting of parting of the parting of the parting of the parting of the parting of thinker and united to save the black may see it to high by which to save the black mind mad whintover platinum it may comisin. In return for this privilege, he will guarantee to give the me-half the gold product of the black iners one-half the good product of the ones, and, free of expense to them. He does not

Resire to save anything that the miners them-selving can asve. A fairer proposition than this we cannot conceive of. Hereafores he binds have realized nothing from either the bindig and or patitions, but should this offer be accepted, and we have no doubt lest it will, the conceived of the control of the control of the theory of the control of the control of the control of the control of the control of the desired of the control of the control of the pression is control in the control of the control of the pression is control in the control of the contro bersen knowing how to save the valuable metal new going to waste, he is the only one facial now going in waste, no it is only one willows a confirm such governor terms willout serficing this own recourses—and its recognised to the confirm the knows what he is cook. The reduced more will cost sometimil the 3000 and invitable supplement to the more than the confirmation of the confirmation by the heckenary continuis can be inside, by indulie of February or first of March, the indulie of February or first of March, the induling the health of the induling the health of the Sunian March of the Sinte, and will eventually make, and were of proposition in the uning history of the Sinte, and will eventually make, and were of propositive in comparison to section era of "12 will appear insignificant 1 univerthy of notice. In conclusion we add trige upon our miners the advisability (validing themselves of Mr. Edison's profices

avalanche of applications as soon as the Though mercury, Growthe Col! Best and Richest.

in early day, as there will undoubt

Hest and Richest.

After a four months' tour through 'Oregon,
Washington Territory, Novada and California'
in quest of platiann, Major McLaughlin informs us that the lands surrounding this city
are the richest and best, in the line of mineral deposits, that he has yet found.

PLATINUM NETAILS.

The Credenists of how which results for the verbing of gold, contains—based as early amount of gold in verbing of gold, contains—based as earliest amount of gold in verbine state of divident held in superadous—platinum, between the state of divident held in superadous—platinum, between simpled also contains of gold in verbination. The same limited are contained as earliest of the gold of the

same a rectam quantity of polludium, which is alterwand separated by interesting the very competent of the production of the metallic state.

In the metallic state, we are present the proposed attribution in the metallic state.

In the state of the production of the production of the state of the production must be desired entirely control to the state of the production

brings down the palladium as yellow entoring of punasion and ammonium. As nothing is said by Mr. Opticins about the notalistical into and radiolium, we must infer that in the German gold refuncies they have not been met with in large enough quantity to warrant their separation from the platinum in this process.—Monthly Magazine.

Am. Chemist June 75

Europe or America. The priors of many of the dearest may be considered also us "fancy prices," and actually a whole pound of some of the metals named could hardly be obtained at even the extravagant figures annexed. In compiling the following table we have taken the prices of the rarer metals from Tromusdorff's and Schucharit's last price-lists; we have assumed the avoirdupois pound us equal to 453 grammes, and the

mark as equal to 24 cents gold. An inspection of the table is not without interest; it is evident that the prices of the metals bear no relation to the rarity of the bodies whence they may be derived, for calcium, the third in the list, is one of the most abundant elements. Even that excessively sparjugly distributed metal indium, the most recently discovered element, stands tenth in the list, below strontinn. The metals of the alkalies seem to occupy in remarkably low place in the table.

S. and T. annexed to the price per gramme stand for Schuchardt and Tromusdorff respectively, and indieate the source of the data.

Metal.	State.	Value in gold per Ib. aveir-inpula.	Price in gold per gramme.	Author lty.
Vanolium.	erret, fused,	Batteres	\$00'60	8.
Rubidium.	wite.	3464 60	7.30	s.
Calcium.	electrolytic.	2446 22	5'40	8.
Zantalum.	nore.	2446,23	5'40	8
Cerime.	fused globules	4116.93	5"40	8.
Lithique.	glebules,	9335-95	4192	S.
Lithium.	wire.	2015'44	643	8.
Erhlane.	fared.	1921'92	376	8.
Didyndam.		163.708	3/60	8.
Strontism.	electrolytic,	112574	1143	8.
Indian.	Pure.	1122 65	1"15	т.
Retherdam.	yanv,	124594	2.68	T.
Cobambine.	fored.	1249.18	2,52	8.
Rhedinu.		2072784	3.33	T.
liarion.	electrolytic,	614.13	2704	8.
Theiling.	***************************************	215739	1.63	7.
Canding.		61273	1744	7.
Palladient.		448130	1*19	7.
Panisonni, Iridian.		466150	1703	T.
l'eaulem.		434*58	105	7.
Geld.		299'72	-	
Titasisto.	freed.	230'50	*52	
Tellerium.	Inter,	106:00	'41	
Chrestian,		105.10	90	
	ii .	122,71	*22	
Platinute,	ü	10072	*24	7.
Mencaness,		808	*11	7.
Melybdeants,	wire and tale		*10	7.
Megneslum,	giologica,	2755	95	7.
Pone-ium.	Konganes.	18:50		
Silver,		16*10	1615	8.
Abandelsen,	bar, cubes.	12.68	1075	8.
Colult,	Garres,	150	1018	T.
Nickel,		116	1007	T.
Coltabate,		1785	265	7.
Sodbam,		1725	500.6	8.
Riemath,	erado,	1,00		
Mercury,		135		τ.
Antimony,		95 1		
Tie,		'11		
Capper,		215	Prices !	sken fro

THE METALLURGY OF PLATINUM.

We have been favored with some notes on the magnificent exhibits of Johnson, Matthey & Co., of platinum and rare uscallic preparations, at the Paris Universal Exhibition,

15%.

The most notes we learn that from the year 1800 to 1800 and there are the many of the emisent from was employed a worker of a present member of this emisent from was employed in working upon platium, and tilecovered the property of the present time of the content of the present time on the Continuant. The first apparatus of platinum eyer made for the content of the present time on the Continuant of the present time of the present time on the Continuant of the present time on the Continuant of the present time of the presen

ounces.

The work of this firm in connection with this valuable metal may be summed up under the following heads:

metal may be summer up uneer one convous groces.

The Medilurgy of Philinum.—The separation and production in a state of parity of the metals, rare and precious, of which the native ore chiefly consists, viz. Hainum, ruthenium, irruthenium, RICES PATHS.

The Piscins of Platinous by the process first commercially brought to notice by 31M. It. St. Claire Deville and Debray in about the year 18m in the function of pure sponge platinum instruct of the imple compression, unting it by forging under the old system, which must always produce metal more or lees pursues) it is obtained in a condition of the most

perfect compaciness, strength and durability, and of in-creased resistance to the action of acid. Messes, Johnson, Matthey & C., melt inguls of pure platinum of any weight, up to 10,000 ounces.

perfect competitions, meaning and places, admission states of the perfect competitions regulated in accounts various parts.

Approxime for the Construction of Subjastic Arid.—The trus subjastic acid will made in 1980 were of a few development of the subjastic acid will made in 1980 were of a few development of the subjastic acid will be subjastic acid with the subjastic acid will be subjastic acid with the subjastic acid will be subjastic acid will be subjastic for a construction of the subjastic for a construction of the subjastic for a construction of the subjastic for a construction of the subjastic for a construction of the subjastic for a construction of the subjastic for a construction of the subjastic for a construction of the subjastic for a construction of the subjastic for a construction of the subjastic for the subja

of fuel.

Alogs of Philinum.—The preparation of the allergy of platinum of this firm, especially of the allergy of platinum of this firm, especially of the allergy of the control of the control of the control of the control of the property of the control of the

The following also deserve attention from visitors to the Exhibition: Platinum and Gold Pyrometer to determine the degree of facts in the belief.—Inhoratory Alsonia for making hydrolumoric actid, e.e.,—Platinum Assoy Algantins—

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Square and Bona Phalmon Septembers of extrainedings,
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Gold	8.
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Platinum	
Aluminum	

The Bare Metallic Preparations exhibited include osmle acid, hypo-rathenic neid, platinocyanido of magnesium, sodio-chieride of rhodium, etc.—Chemical Mess.

**Aphatony farmance proof with mustace framework for the proof of the PLATINUM AND IRIDIUM.

DISSOCIATION OF THE OXIDES OF THE PLATINUM GROUP,

By H. SAINTE-CLAIRE DEVILLE and H. DEBRAY.

PLATINUM ORDITOR.

By H. SINTENCEARED BETTLES and H. DERMAN, TANDER IN ACCOUNTS AND THE PART OF THE PA

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By WILLIAM SKEY,

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Litem ore: idiam car-OXIDATION OF SILVER AND PLATINUM BY OXYGEN IN PRESENCE OF WATER.

ne to two regia, and i-dissolved is added; ried on the e of silica evaporated reutralised cipitate is a drops of the iron is tate. The

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Analyst to the Geological Survey of New Zealand. I SHALL confine myself in this paper to a statement of results, and the considerations which led me to neck them, as I intend lerving the discussion of these in their various relations to certain debateable subjects for another oppor-tunity, my investigations upon this matter being as yet incomplete. incomplete.

A knowledge of the fact that gold and platinum replify nutes, and inches in the liquor precipitate nin. This The double

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and mag-he liquor, y 8 to 10 tanganese ter, dried, oxide is aration of acid, and liquor is 20 c.c. of a the cal-ionis, and

ID METHOD FOR MAKING PLATINUM-ALLOY ASSATS:

ID MITERO FOR MANISO TANTESURADOT ASSATE
INTERNO AND MINERO DOUBLAND.

A year ago! I had to exclusion to make a some assays of plattical properties of the properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of position of the plattical properties of p

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th accurately and rapidly, so filtering being required,
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unum alloys containing base metal, silver, platinum, gold,

you Mise, jurn 4 to Mg. or sufficient to produce pre-curact veight!*
In stock that analyse, Verjah hetton, Lora w base metal, in its such chair and the mean of the mean of the little of the I sufficient analyse, the work of the little of the little of the I sufficient onesy. Introduce cornet into parting flash and introduce the work, and the work, Lors from y an Agi to original alloys and weight, Lors from y and the original alloys and the summer of Ag that there is a before, form corner and part in favil in IlNOs as, gr. 180, Wash theorophy, anneal in amending with must partie, doding Au 190 sectors from the con-vibility and the control of the control of the con-

with aqua regia, obtain Au by loss-the residue is

lete assay in duplicate, 2 hours, 45 minutes, etfully yours, Nelson W. Perry, E.M. anurry 6, 1879.

* Read before the Wellington Philosophical Society, January 25th,

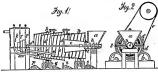
IMPROVEMENT IN ORE-WASHERS.

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TAYLOR'S IMPROVEMENT IN ORE WASHERS.

TAYLORS IMPROVMME:

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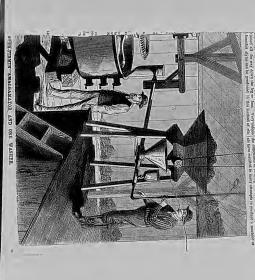
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where the other strokes and it is made of a circum contention in such cases, and indicates are when the war are full active to contention in such cases. The content is such cases and the contention in the cases and the content in the cases and the cases are cases and the cases are cases and the cases are cases and the cases are cases and the cases are cases are cases and the cases ar

Many notifications of the above described methods of smallpambion are adopted in different diffrient, indeed, scarcely two misses employ precisely the same methods in the same nament, but the greated principles are influently indicated in the above briefs.

loss of mercury by "flowing uned to prevent presence of sulphur, arsanic, and especially tellurium in the ores " ""."



pass from the fire flues insi the roasting bed, not HCI mote the file flues, and inence escape to the chimney, where with used in frances, very little attention need be expensed in the contraction of the

may also mention that the Messrs, Deaco I may also mention that the Messrs. Deacon, at Wisters, are now aiming at producing the same effect in the fire flues as I have described, without using gas, by sinking the fire-place some 7 feet or 8 feet below the working bed. This plan, however, will cause a good deal of inconvenience, and extra labour in fitting.

(To be continued.)

Some thirty years ago Laurent and Gerhardt tought to explain the salts obtained by Magonas, Gros, Rietwisy, Retest, and other, by supposing two platinums of necessity, and the salt of th

duced. The companies and coxycliorate bases were pro-duced. In 1897 Perf. Odling gave a teclinel colume of these compounds, adopting somewhat cell ideas and remon-ceded to the companies of the compounds of the externed to great an influence on chemical philosophy to this day. He has one double copyricate or distortion weight of platinum, which, however, does double duty, replacing eighter over of nor equivalents of platinum, the the following propose are customly equivalent or replace with other to

Taking the chlorides as typical of their series, they have some curious ratios:--

I. The platosamines— Pt*(H₂N)₂-2HCl=H₆N₂-2HCl=H₆N₂,Cl₂.

II. The amo-platosamines-Pt"(HgN)2.2HCl=HraN4.2HCl. III. The platinamines -- ClaPtin (HaN), 211Cl = HaN, 211Cl.

The amo-platinamines— Cl₂Pt^{err}(II₅N₂)₂,2HCl=H₁₅N₄,2HCl.

V. The amo-di-platinamines-Cl₂OPt" (II₂N₂)₄₊₄HCl=II₃₂N₈₋₄HCl. In III. Cl₂ is replaced by (IIO₂)₂ and (NO₅). In IV. Cl₂ " " (NO₄)₃. In V. Cl₃ " " (NO₆)₂! In IV. Cl. "

In V. Cl. " (NOL)"

These menerical anomalies have not passed amoliced by the great intelletts devoted to a continuation of this work of the continuation of the conti

nalies referred to.

Again taking the chlorides as typical of their series we

zNII3i't".Cl2 = II3N2.Cl2.

4NII3Pt",Cl2 = II14N4.Cl2. 2NH₁Ptⁿⁿ,Cl₄ = H₁₀N₂,Cl₄,

nmonio-platinie compounds 4NH₃Pt^{mr}.Cl₄= H₁₆N₄.Cl₄.

V. Octaminio-pla >-platinic compounds— SNII₃Pt₂.Cl₃=II₃₄N₅.Cl₅.

V. Odnaminie-planties comprouse—

Tables Pt. N. Phys. Cen. 13, New Cen. 2 (1997). Cen. 13, New Cen. 2 (1997). Cen. 13, New Cen. 2 (1997). Cen. 13, New Cen. 2 (1997). Cen. 13, New Cen. 2 (1997). Cen. 2

L 2NH₃Pt",Cl₂= The chloride... The oxide ... The hydrate ... The sulphate... The platinate I. 2011, Pr. Cl. =

. PHI, N, Cl or PHI4N, Cl. PtCl.
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PHI, N, O. III
PHI, N, O. SO,
PHI, N, O. SO,
PHI, N, C. PtCl, &c. II. 4NII3Pr".Cla= 4NII₃Pr".Cl₂= PrH₆N₂,Cl or PrH₁₂N₄,Cl.PrCl. PrH₆N₃,O.11O. PrH₆N₂,O.CO₂. PrH₆N₂,Cl.PrCl₂,&c. The chloride... The oxide ... The hydrate ... The carbonate

III. 2NII 1Perri, Cl4 ... 2NII₃N,Cl₂ or PtH₆N₂,Cl₂-PtCl₂-PtH₃N,O₃. PtH₃N,O₂-8O₃-PtH₃N,O₂-8O₃-PtH₃N,O₂-NO₃ (a). PtH₃N,O₂-2NO₃ (b), &c. The chloride ...
The oxide ...
The sulphate ...
Another ...
A nitrate ...
The nitrate ...

THE PREPARATION IN A STATE OF PURITY OF THE GROUP OF METALS KNOWN AS THE PLATINUM SERIES, AND NOTES UPON THE MANUFACTURE OF IRIDIO-PLATINUM.*

THE MANUFACTURE OF IRIDIO-VI-ATINUM.

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It is prepare it is not up. 10. Grosson MATHEN.

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indication, or shullman that may have been present. These models are althoughough to conclude the models of the contract of heady or will be found in a visit of an analysism black the models of the contract

composed.

composed.

By the method above described the platinum is freed not only front rhodium, but from all

By the method above described which it may have been contaminated, and is brought to a state of perfect purity,

of the density 21-16, the highest degree attainable.

Afficiency—In the preparation of this mean's when indeeded to be used for the manufacture of the contributed of them as the contributed of the contributed of them as the contributed of them as the contributed of them as the contributed of them as the contributed by the contributed of them as the contributed by the contributed of them as the contributed by the contributed of them as the contributed by the contributed of them as the contributed by

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A Paper read before the Royal Society

recibine is washed with chlorine water to remove any trace of gold, and family with hybolismic and it, most over takes one specific which might have been accidinately insolved with the labelst service of the specific or the control of the labelst service of the labelst servi

compression through one of spage, inclusions, monom, the permitty of the ingent content Showing a dentity at zero of 11-048. This was then passed through highly political rulis until of a length of 2000 cestimeters, 22 millimeters in width, and a millimeters these, is owhich a perfectly rectangular form was subsequently given by drawing it through a series of plants and thus prepared the rule was in a condition to receive the heatural positis to which this alloy is susceptible.

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	confection des	ne iridié de M. I règles divisées, laisse polir au el s beaux. Le sé à gâter la divi	Matthey est is Il est exe sarbon. On	ncontest mpt de pent, sa	ableine ces p ms dan	ent sup nities	érleur qu'on lever l	au platine on rencontre tor	linsire, pour la ijours dans co
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	rear fam.	pouvous que ve férement les diff ens de recevoir l	'assurance de	mos ses	timent	s les p	ius dis	lingues.	Recording of
	In the year and I was re- exterior diame	1876 the sugge juested to pro- ter, 37 million	stion was ma luce one of stres; interio	de to si the fol or diam	persed lowing eter. 2	e the r	ectang		R FRERES," a tubular one, a centimetres;
	hove describe	ter, 37 millimension of small to long, which I dent results for the d. These pro	be last twent	rears,	cmplo	ing fo	the p	urpose an alle	
	nd square, of Iridio-platic or standard ru	various dimensi num alloy has les and welchte	ous, as lately now been p	shown roved t	at the posse	Paris I	ixhibit follow	ice made atue ion. ing among ma	s, both round sy advantages
1	illy polished s landard weigh a alloy of nor	indestructible, urface can be o its its high dens less than ac-	has extreme btained upon ity is a valual	ble quad	ity, and	I for t	hese 1	should indee	eat, whilst for
a	adysis the fol	a cylinder 40 lowing proport Platumo	millimetres ions:	liy 40 i	nillime		Juca	an alloy, whi	th showed by
		Iridium Rhydium		**	::	::	**	19:0786	
		Ruthenium	:	::	::	::		0.0100	
		Iron						0.0380	
_	of some than t							10010016	
w	With such r hilst its malle. The volume	lensity of 21-61 bigh density is ability and duct of the kilogram f the melilyes	its coefficient	nd is as	dut non	n.		one of the h	
Pr	eferable.	f the archives I have arrived a				· ·		many others	15 OF CORES
	The allow of	to see sent in	Marie to a						
	nen heated at operature litt d foreness.	low temperatur le less than me	e. Thirty p	er cent. being li	and 4	per e	te he cut, wi cold, s	worked into s ith great diffic sith a grain of	heet and wire ulty only at a great beauty
		nt. I have as ye resure when in results of my w							
15	For the man	ufacture of star form, adopting dard weights to							
	Finally, follo ours "d'avoir	wing the expre r enriche l'outil	ssion of the lage scientific	preat l- great l- jue d'ui	rench alling	chemis e doud	t, M.	Dumas, 1 le iétés précieuse	ope by these
W.	a neat just to y possible tra	g through each flow melting-pe the action of m ce of adherent from the end a	oint, and eac selted borns, iron or other	h time and bol impurit	throug led in c	oncent	ifter for rated i	orging, rolling sydrochloric a	and drawing

s and oxygen and drawing tid to remove ve the follow-

ing results:

Weight in air

Weight in air

Showing water

thus proving that the necessary processes of as sibly to resume its original density.

The analysis gave— ١. 11. 0.19 0.18 10.19 80.10 0.10 0.10 10.55 10.55 9790

From which is deduced :--

A 100

	Proportion.	Density at zero.	Volume,
Iridio-platinum, at to p. c. Iridium, in excess	99733 6*23 6*18 6*10 6*00	21°575 22°350 12°000 12°261 7°700	4-603 0-015 0-028 0-028
	95.00	_	4-644

Density at zero, calculated after Xio. 1 and plos. 217300 those coinciding portectly with the resistant route chapter. 2 27330 merces are supported by the resistant route chapter. 2 27330 merces are supported by the resistant route to a good number of mechanical experiments, communicated the resist of their observation to M. II. Sainter-Claim Derellig, that: -" Paris, 27 Août, 1878.

"MONSTERE,
"La division de la règle géolésique, que nous Libous pour l'Aspeiation Géolésique Inter-vianale, et terminée dépuis quelques jours.

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Hart the infinite print of the study. The study of the st "Do small these the control of College of Co

which the control in a managed per special per control in a managed per control in a managed per control in a managed per control in the cont

ANY ALLEANATION OF SILVER CORRS

AND DELIARATION OF SILVER CORRS

JAN. 17, 1879.

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rly the den			2 1430	ii inciai.	11 4472	function of
lysis to cor	ttain.	-		I.		11.
Platinum			111	89'40	***	89:42
				10.10		10,55
Rhodium				-18	***	.16
				110	***	10
Iron	***			*06		.00
,,,,,,,						
				99190	***	99:96
rom which	tite	follo	wing 1	igures we Prepente	e. Densit	Volume.
atinum Irid	form o	t 10	ner cel	nt. 99°33	21.27	4'003
idiam in es	coss			0'23	22.38	0.010
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rom				0100	7.70	Scoro o
				92795		4'644
lensity at o'	C. c	alculo	ted fr	one analysi	s No. L	m 21'510

Dennity at eⁿ collected if monosphys. 1, eⁿ/46, which games perfectly with the grants of the marginary which agree perfectly with the grants of the marginary of the control of the co

ALLOY OF PLATINUM AND IRIDIUM FOR A NEW METRIC STANDARD OF LENGTH

ALMOY OF PLATINUM AND RIBURAL CORF.

THE Warden of the Standards the World Standard

Tenth Annual Report of the Warden of the Standards, 1876, p. xxiv. 2 Complet Render, No. 23, 1876, p. 1290.

ENGLISH MEGHANIC AND WORLD OF SCIENT

Trains with of swing and only include the control of the c

A T the recent meeting of the Sanitary Institute,
Dr. Day result a paper on the relation of
"Ozone to Heath and Disruse." Dr. Day entered
fully into the history of the discovery of exemy, and

VINGT-TROISIEME LIVEAUSON

(TONE SECOND)

50MARIAL — TEXTE — Composion, col. 700. — Expositrous : Exposition universale de Paris : Charlet par les gon franciscosts, pl. 37 cp. 10. — Machinia piques de la excluse bolge, pl. 20 cl. 100, col. 714. — Micrassonus : Univolutie de fra sea Chate-Univ. 101. — Macrinus nos universa ex norma en contractor de la tercomotion de la force maticion en moyen de concles datas le folia. — On the contractor contractor : Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Compred de grisé cetil (p. 4 cmc). — Commission en Commission

PLANCHES. - 97 et 08. Charlot pour les gros transports, col. 712. - 99 et 100. Machine à papier, de la section beige, col. 714.

CHRONIOUE

Sousain. — Nouvelles ei menzes officielles. — Académie des Sciences i la l'acidie particulir du il de juliaine sur les hydrocarbures i Moldicalian sparticulir que l'acidie par M. d. Coppillon. — Presaprit des paquets en Anglederre. — La décomposition des corps réputés adoptes. — In lumitres destrique. — Charin de fer irannastralitud. — La l'Edémathen. — Las classies de fer heòges. — Les depités de bouille du Jaque. — Iranhaben de la monde miller. — La l'acidie de l'acidie. — L'acidie de l'acidie. — l'acidie de l'acidie. — l'acidie de l'acidie. — l'acidie de l'acidie. — l'acidie de l'acidie. — l'acidie de l'acidie. — l'acidie de l'acidie de l'acidie. — l'acidie de l'acidie.

Un concours sera ouvert à Paris le vendredi, 3 janvier prochain, pour la nomination d'un professeur de plysique et de météorologie à l'Institut national agronomique.

Le programme de ce concours se distribue : 1º au Ministère de l'Agriculture et du Commerce (direction de l'agriculture, 1º bureau); 1º au siège de l'Institut, établi dans les bâtiments du Conservatoire des Aris et Métiers, 292, rue Saint-Martin.

Actidation des Sciences. — De Continos particulière dis fil de platien sur les Aydrocarbuses ; modificación en apparéte en sur les Aydrocarbuses ; modificación en apparéte en se prisonneixes (», par N. J. Compillon. — Nos lecteurs connaissent le agricomient en do J. J. Coughilon, en ciet appeid à rendre de grands services dans les mines à grisous. Cel habilo physicien, a parti oderver due les fil de publication employé dans ses premiers appareils pouvait, sans inconvicient et même aver quolques avanual tages, étre remplared, dans certains cas, par un fil de platiens, a arbergé II relacibelle une note que nous reproductiva, a margo III relacibelle une note que nous reproductiva.

a 3 in monthe, dans une note précédente, comment les hydrocarbures gazeux, en passant sur un fil de palladium porci au ruege laban, en présence de la vapeur d'aux, et transforment en oxyde de carbone et en hydrogien, et transforment en oxyde de carbone et en hydrogien, le principal que, en présence du fil de plattas sont, identiques; rette action semble donc due exclusivement à l'incendescence du fil el plattage.

«Il n'a para intéressant, dès lors, de rechercher si le platine pouvait remplacer le palladium pour l'analyse des hydrocarbures gazeux, et s'il pouvait brûter, comme lui, de très-petites quantités de gaz carbonés mélés à l'air. J'ai fait pour cela les expériences comparatives suivantes : a 3 si pris un tubo de 2 s centimètres cubes environ, à l'extrémitol inférieure duquel l'si fist souder un fil de pala ladium de 2 si o de millimètre de diamètre, et de 3 s à centimètres de longueur. 3 si introduit anso c tube du gaz 2 s l'il si proportiu de 3 s 2 s l'il si qu'en 3 s ou 3 s 3 s. Le carbone a été compétement brûté, et dans sucun cas jo n's obtenu de détonation.

« En opérant dans les mênes conditions avec le fil de platine, et le portant au rouge blane, je brûlais complétement de petites proportions de gaz. Mais, à partir de 4 %, l'obtensis de petits soubresauts, et, à 7 %, des détonations qui pouvaient briser mon tube.

« J'ai opéré casuita des mélanges d'air et de C⁴Ht; ve il de palidaire, j'obtensi de opteils soubressats et même de petités défonations avec 7 ou 8 %, i po peuvais néammoins faire mes lectures et mes observations; en opérant sur le même gaz avec en il de platine, les déconations élaient beaucoup plus fortes et brissient mon tabe.

« Do ces expériences, nous pouvons conclure quo : 1º lo hicarbure d'hydrogène, miélé à l'air, est plus détonant que lo procarbure; 2º le palladium produit une détonation moindre que la platine; 3º ces deux métaux peuvent également brâler au rouge blanc de petites quantités de sax.

"On pourra donc, dans certaine esa, culstiliure le platine au palladium, l'oragino n'aura pas la crimidro les dicionations, c'est co que j'ai fait pour mon personnative portune." La mestrerar de ces appareit a mon capacido est menti. La mestrerar de ces appareit a mon capacido est estre de la companio del la companio del

• Une incandescence do r. à l. a secondes suffit pour brûter tout le gaz contenu dans les 12°, 5 et il finat attendre trois minutes environ pour le refroidissement de la masse gazeus; il faut, bien entendu, veiller au contact des bornes-pieces, pour qu'éles ne séchadifent pas et que des bornes-pieces, pour qu'éles ne séchadifent pas et que par suite, lo temps du refroidissement ne soit pas troip ong. En faisant, du reste, une cueptione, à plane sur de l'air ordinaire, on verra le, temps que le gaz, net à revenir l'air ordinaire, on verra le, temps que le gaz, net à revenir.

velocity of 150 feet per second, and at a distance of 150 feet velocity of 100 feet per second, and at a distance of 150 feet to 200 feet specially undermines the most refractory bank. The engraving on page 274 shows the mode of application, and that at the bottom of this page illustrates a common secon in the footbills of the Skerna, where dozens of streams may often be counted from a single point of view. The main obstacle in hydraulic mining is not to find material, but to get ris of the returnes. The enormous amounts of the contract of the contrac

to the long with of the verbance and the control was to be controlled by the control of the verbance and substructed the current, deposited barren soliment by millions of tons where it was remarked, and an ascendanted the controlled or the controlled of the contro

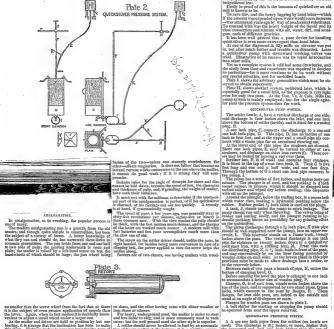


the smiller makes a current by theories; the puly to the outrent of the state of the control o

QUICASITEB.

Quicksilver is to thost mechanically and chemically, and cremat vigilance is required in both directions. determined the properties in both direct inserties, and the properties in the properties of the control of concept. Consequent upon confined lifting and carrying interactions of the control of the contr

tried. Illustrative of its success was no rapton autronousous important production of the control of the contro





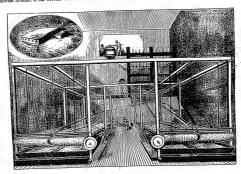
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DECEMBER 29, 1577.

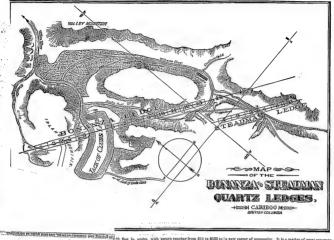
SCIENTIFIC AMERICAN SUPPLEMENT, No. 104.

The system of the proper



THE FRUE VANNING MACHINE OR ORE CONCENTRATOR.

Amer. The report prope, which for ten the Replacement of the ten than the Replacement of



THE CARINO QUARTE LEDGES

We present herewith a diagram of the Bossan and Steathers (1998) and the Carloo makes a first of the State of the Carloo makes (2008) and the Ca

HYDIALUC NINNO IS CALIFORNIA.*

If Aco. J. Borne, Jr. A. M., Make Engineer.

In Property of the Control of the

Table Showing Details of Canstruction of Wrought Iran Pipe for the Spring Valley Water Company of San Francisco

Bris of the Bands	of the	Thick- ness of the Sleeves.	Width of the Sleeves.	Witth of the Sheets used in the Pipes	Thickness of the fron used in the Pipes.	Diame- ter of Elvets used	Pitch of the Circle Seams in the Ostable Courses.	Pitch of the Circle Seams in the Inside Courses		Length to the Jeining Holes in the Outside Courses	Length to the	Whole Learn	Whole Length	Spaces in the	Pitch of	States		
Belon Belli	Inches. 4) 4) 4) 4) 4) 4)		Inches.	13 ches. 62 62 64 62 63 64 63 60 33		Bid Bid Bid Sid Sid Sid Sid Sid	Inches 3,4529 1,4529 1,4529 1,4529 1,27 ,95402 ,95402 ,95402 ,95402		lodes. 1.03 1.5 1.5 1.5 1.5 1.5		Courses, 13.01471 55.40701 55.40701 54.50701 54.5071136 57.057136 57.057136	Jnches, 50,720 50,7201 50,7201 50,7201 50,700 50,745 50,745 50,746 60,496		ocumi,	Row, 1,7000 1,7000 1,7000 1,400 1,400 1,400 1,400 1,400 1,400	llow,	Double Rese, Double Rese, Duches, Duch	Inches

8

The Pakading cellurarity used is of these stores pine [4] to [5] their stores read in one, one delith or as inch is dimenter, but the behavior of the properties of the proper



SKETCH OF FLUME.

AIR VALVE FOR 23-INCH WATER PIPE

When the mass has been boiled to a proper consistency, and by test the coating is found to be brittle, it at once indicates that the mere has been boiled too hot, or that there was teen builted too hot, or that there was teen numerical on the tar or aspinaltum. After the pipes are dipped they are nuclei out of the bath and the superluous asphaltum allowed to drip off, so there is no waste.

The following table about the usual distances of rivets for corresponding thickness of iron; items relate to 22-inch wrought-iron pipe:

The accompanying figures * given in tabular form the details of construction of wrought iron pipe 18 inc



The use of sheet iron pipes for conveying water in large anntities originated with the hydraulic miner. The in-ignificant weight, coupled with their great strength (ten-

and costs will admit. Stringers running the called length of the thume are placed beneath the still your easiest length of the thume are placed beneath the still your easieste be post. They are not alsolutely necessary, but in point of ecusiony are most valuable, as they preserve the timbers, the properties being placed every editions is treated, the main supports being placed every edit and the string such are in accordance with the requirements of the work.

es Pres Cate Value PROFILE.OF WROUGHT IRON PIPE FOR THE CHEROKEE GRAVEL MINES Bulls.County.Col. lon Journated Long

sile), admirably adapted them to the service for which they have been employed. The general item do the pines used in the mines are 40, 30. The general item in diameter, of freeded light steet from the contract of the pines which the significant than the sile of the pines which have been to be a sile of the pines are the pines which is neglitic and about 30 feet, and put together from which the goldstand and the contrally and charpy however that the pines are the contract the pines are the pines of pines. They are the pines are required to change the position of the little and pine Tengen and the pines of pines they are the pines of pines. *A paper rend before the American Institute of Mining Engineers at the Wilkes-Barre meeting, May, 1877.

† Side beaces and extra extension of the sill are in many cases only an nearcostary expenditure of money.

THICKNESS OF THE IRON, RIVETS, ETC.

The thickness of the iron is usually proportionate t head of water and the diameter of the pipe. Pipes may the different sizes of iron here mentioned will stand the

No. of Iron	Lbs, avd'ns,	10 41 6
13. 12 to 9. 9 to 3–16. ‡ to ‡.	9,000 to 12,000	t

ley Water Company, which amplies the city of San Practices. The information here alforded to mechanical engineering the properties of the company specific fact the contraction of wrongstrong specific and less, and has been made with this low promoting resectional lack, and has been made with this low promoting the contraction, and the command with the special promoting the contraction and the contraction of t

*The data were obtained from Joseph Moore, M.E., Supt. of the Rachesson and Accounties Works, under whose immediate description in a page

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Marie San

JANUARY 26, 1872.

SCIENTIFIC AMERICAN SUPPLEMENT, No. 108.

10. The control of the schedule with the control of the control o

THE SECOR PROCESS FOR GOLD AND SILVER.

THIS SECON PROCESS FOR GOLD AND SILVER.

"This collising whether said to extens gold and alliver from shift one is by creating in a said, and then anadogmostic, generally employed to the process of the

second thus he the open pass with the fourcast; in a walbillion state in other tower that. This double process was
the state in other tower that. This double process was
the state of the tower that. This double process was
the state of t

nunlcations are sometimes addressed to us asking ar advice or opinions concurning various methods of working gold ores, and recently several correspondents have sought to know if there be any approved way of saving the fine gold which is conted or incused with iron or other sub-stance that prevents or seriously interferes with amalgama-

The chlorination p occas, which dispenses with amalenmation, has long been in practice in this country and gives i very satisfactory results, being especially adapted to the treatment of ores containing tine gold. The ore is stamped, then roasted and stirred in a furgace at low temperature until all the sulphurets, ste., are decomposed, then removed, spread and cooled, after which it is moistened with water and introduced into weeden tubs or vats, with bottoms arranged for the admission of chlorine gas, which is generated by heating a mixture of sulphuric acid, manganese, and salt. This gas is conducted into the tubs until it has covred and penetrated the mass of ore, and is allowed to remain in this intimate contact for reveral hours (the time depending upon the size of the particles of gold), until all the gold is converted into a chloride which is soluble in and is then dissolved out by water, to be treated with sulphate of iron, which precipitates the precious motal in a metallic condition as a fine dark brown powder.

This is unquestionably a sure process, but its economical no depends very much upon the proportions or amounts of the base metals in the ore. To overcome what may almost be termed the repellent action of this coated fine gold upon mercury—to prepare it for smalgamation—nitric and sulphuric acids have been used and rejected because of the expense; for they will not select and remove this coating to the exclusion of the inferior metals, for all the copper, iron, etc., present equally demand their share of the reagents; so that it is only ores of exceptional character and richness that will justify such treatment

As it is especially those particles of gold, so minute and this that they escape the action of the stamps, which, in many instances, form the larger percentage of the assay, and

JULY 20, 1878.]

which nevertheless clude amalgamation, it is evident that stamps are not suited to this class of ores unless another manipulation is introduced between them and the amaleumator, and to our mind a most efficient one would be to heat the fine ore to a bright red or white heat and suddealy cool it with water, the theory being that the expanslow by heat and Instant contraction by cold will scale off or erack the coating so that the moreury can get at the gold by the usual processes of smalgamation.

We remember somewhere to have read of a furance es pecially designed for this purpose, but do not at present recall its history, but the feasibility of the plan seems to us undoubted. Another method which has been suggested and which has a practical look about it is to reduce the ore to a fine powder in some machine which will cause so violent an attrition of the particles one against another as to rub off the interfering easing or coating and leave them clean and bright for the action of the quicksliver.

It is claimed that this is effectually done by one or mor of the pulverizers or attrition mills now in the market, and that they also separate the metal from the gangue or matrix much more thoroughly than can be or at any rate is done by stamps, and that they deliver it in a condition more favorable for the action of the amalgamator, in pellets instead of in this, flattened particles which so largely escape with the overflow of the water; but of these points mining superintendents can best judge of actual trial; and the importance of finding a solution of them should warrant the ex-

pense of thorough investigation Neither tradition nor modern practice has helped us to such understanding of the working of the refractory gold ores as they have of the ores of allver, and, in consequence, ere need sting many cla

The Old Telegraph Mine.

The Old Telegraph films.
To the Editor of the Scientific American:

About twelft-five miles by rail, south of Salt Lake City, in the Hingham Calon, one of the most reliable milres of Utab is located. I refer the Old Telegraph, which has for many years been well and favorably known in this

[JULY 26, 1879.

country as a producer of lead bullion. The mine is reached via the Utah Southern and the Bingham Canon Railways, the latter read connecting with the former at Junction, a distance of twelve miles from Salt Lake City, and theace it runs to Bingham, thirteen miles distant, up a grade 200 feet From Bingbam there is a tramway running up to the mile. the sides of the mountains to the mouth of the mine, more than two miles away. The ere is run down this tramway in small cars, and dumped from their elevated track into the larger cars of the railroad. The necessibility of the Old Telegraph is all that could be reasonably desired. Bingham Casion is more in the nature of a valley than of an abrupt canon. The slope is admirably utilized by the tramway and railroad already described, so that the attraction of gravity performs without cost what otherwise would require expensive machinery to accomplish. This Bingham Calion Rallroad was built to meet the necessities of ore shipments from the Old Telegraph, and it has pald for itself more then three times over.

Bingham City is also an outgrowth of this miae, and it is one of the most considerable mining towns in the Solit fake one of the most considerable mining towns in the Solit fake reality. The property of the mise is about 3,000 feet in length, and the artike of the vein is nearly cast and west. The average aktitude of the whole mountain in which the mine is located is 9,800 feet. This is divided by deep gulches which offer convenient egress in various places for the ore.

The vein is tapped horizontally by five different levels. The first is the 460 foot level; the second is the 420 foot herel; the third, the 300 foot level; the fourth, the 301 foot level, and fifth the 60 foot level. The width of the sean at the 400 foot level is 72 feet, and at the 60 foot level of feet. The entire length already opened is 1,716 feet, and about

1.50) feet some is wirgin ground yet unspreach.
The geology of the wideo Bingham Calon in of the Dromain formation, considering of quartetin, marked to the property of the pr

of man, any proces, wants confining to play their war changed in any plane, wants confining to play the sellow of concentrated on water. Silver is found in the form of any player and cheirful of dirty. Once containing much chained of silver are soldow trick in tend, and are, therefore, and contained the contraction of the contraction

net profit. In the year 1870, the mine produced the sixth part of all the lead in the United States, or 10,000 tons in builton. In 1877 it produced the eighth part, or 11,000 tons in builton. In 1877 it produced the eighth part, or 11,000 tons in builton, the general yield tolong greater throughout the country in 1877. In 1870, 1,000 tons of the ore were analyzed at Pittsburg, by Othon While, with the following result:

Exchange of lend	
Daide of Iron	
Daide of Iron	
Sulphata of 1000 Quarta	
Carlorote of little	
Sulphoin of mind. Carbennia of manganese	

More recent analyses have been mults with practically the easus result. The Old Tedegraph builton is sestemed highly throughout the East, and its worth \$5 mere per ton than any other Units builton, because it does not contain antinney, arsenic, or rise metals, which are noxious to the refunda process; and consequently the builton and or or the other of Tedgraph is sought by refineries and all smelting works in the neighborhood.

About the first of the present year a wealthy French company purchased this valuable mine, and since the 8th of May have been in possession of the property. The man nt is now taking out over 100 tons of rich ore per thay. This operates the tramway to its full capacity and keeps four out of the five furnaces of the smelting works in blust. One hundred men are constantly employed, and preparation are making to increase this number, with additional facilities for a much larger output of ore. It is proposed, at no distant day, to put up three new furnaces, and when this is done the owners of the Old Telegraph will be able largely to command the whole sliver smelting of Utah; for there is no good lead in the territory to smelt the silver with except that of the Old Telegraph; consequently, rather than sell their ore to smelt that of other neighboring mines with, they will lay all other ores and smelt them in their own furnaces This is the true policy of the present company, which they andonbtedly appreciate. The company being one of large resources, the shareholders will not press the managem for immediate large dividends, but will be content to wait for more permanent and equally beneficial results.

Being in Salt Lake City for a few days, I was invited to Join a party of Indios and gentlemen who intended looking through the muses of Bingham Gabon. This gave me the opportunity of examining the Oh Telegraph, with the foregoing results. At the present time the quantity of ore in sight is something over 2,000,000 tons in the open space.

I see a hody of our with a face 300 feet long, if of the high, and over 100 feet what. Have also he had food loved, and over 100 feet what. Have also he had loved, and over 100 feet what. The temperary agest and manage may be a feet which the French company of the seed of the feet when the seed of the feet was to be a partial in the feet was to be a partial of the feet when the feet was to be a partial for the feet was the special of contrast the feet was the special feet when the feet was the special feet when the feet was the special feet when the feet was the special feet when the feet was the special feet when the feet was the feet was the special feet when the feet was the feet wa

the piece will guarantee this result.

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resultly worked. There is no ment at my office to not excessively mine of the mental is made in a considerable of the notation of the mental is made in a considerable of the lowest level; and of the sales from the higher to the lowest level; and of the sales from the higher to the lowest level; and of the sales from the higher to the own-clavel; and of the sales from the higher to the grant of the sales of the sales of the sales of the sales of a conductor affaign until the ore is changed into both on.

Sait Lake City, Utah, June 26, 1879.

WELDING SILVER AND PLATINUM AT 900". —Mr. Fawcet, of Glasgow, Scotland, has accidentally discovered that silver can be welded to platiaum, copper and aluminum at an unexpected low temperature, namely, 100° Fah., then far helow the melting point of allver. Sir William Thomson

considers it as a remarkable case of cohe-sion, or in fact, welding at a low tem-perature. According to Mr. Faweet, amall places of allver foll can be welded at a much lower temperature, but the welding to platinum is bet-ter than that to the other metals issued.

American Tea underlal landy agraed space by the Internalizability and Missauries as that to be useful in making the sover, and it is being the present that to be useful in making the sover, and it is being the present that the to be the standing the sover, and it is being the present that the standing the sover and the standing through the sta

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79 Boston Jan. Thumst SEPARATION OF PASSADIUM PROX PLATINUM.

When sodie forminte is added to a soin tion of palladic chloride beated to 50° C., metallic palladium at once sepaordinary temperature the same reduction takes place, but very slowly. No reducformate is added to a solution of platinic

chloride. Mr. Frank McLaughlin, who has had in charge the ex-

amunation of the mines in Canada reported to have platinum in paying quantities, leaves to morrow in the same interest to examine for Professor Edison the mines of the Pacific Coast which have been reported to have platinum in quantities large enough to make them pay to work. vourier Markeston

And Antonio Transfeld Tran

Uralium, a New Metal.

As far back as 1809 the author discovered this metal in commercial platinum obtained from Russian ores. Next to silver it is the whitest motal known; its malleability is as great as that of the purest platinum, but its ductility is much greater, and it is almost as soft as lead. Its melting point lies near to that of platinum, and it is not volatile. cific gravity =30 25, and its molecular volume, like those of ossaium, platinum, and palladium, is 0.25. Its atomic weight has been found 18725. In its chemical properties it is difficult to distinguish from platinum.—A. Gayard. ee. am 5 61 Antigen 1, 1 o for 1/2 within the ledy of a single polyn, whereas the resimble-holding relating plates in the case of the influence of the case of the control of the contr

stektion, which projects in front, and shields all the 18 mer general. Schundrich to prodis are not patterned into cyclograms at all, but various other companions of the cyclograms and the various other companions of the cyclograms and longer in order to prim more reach in prescring field, and the cyclogram and longer in order to prim more reach in prescring field, and the cyclogram and longer in order to prim more reach in prescring field. The cyclogram and longer in order to prim more reach in the longer in the ampulse longer in the longer in the ampulse longer in the and are expectally recombered in features stock, since they are the stock to contain large enables. In some contains the c In all the Stylasteride, even those with very complex

In all the Stylasterida, even those with very complex cyclosystems, there is a complete circulatory connection between the different systems and all parts of the colory, in the complex control of the colory, and the colory, in these complex mutual benefit associations, certain members of the colonies catch the food, but do not cut lt, other receive it from them and montrish the whole colory other receives it from them and montrish the whole colory but device themselves entirely to the production and erraring of the young. The association from from which the Hydrocombine The association forms from which the Hydrocombine three been developed must have been colonies closely

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IRIDO-PLATINUM

THE volume of the bruke-volvaur of the International Commission of Weights and Measures published in Paris last year, contains, among other matter of much value, an interesting appendix by MM. Sainte-Claire Derille and Sias, who were requested by the Commission to accertain the composition of the parish time and cylinders employed in the preparation of the batterial end cylinders. Gushier-Village, Paris, 1818.

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he material into iridiate and rhuthenate of potash, and the oxidation of the iron; when cold, the mixture is treated	
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the following results :-

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thus proving that the necessary processes of annealing a high temperature had caused it to resume its original

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which coincide perfectly with the practical results obtained." MM. Deville and Mascart find the coefficient of dilatation to be from of to 16° C, orocoox44.

As we have already pointed out, work on which the accuracy of standards depends is of the highest importance, and Mr. Matthey is therefore to be congratulated on the success of his labours.

to take this matter in fand.

Platinum in California Mr. Edison's call for platinum has developed considerable

interest in the search for that metal. According to Prof. Stowart, of Virginia City, Nevada, platinum has been found in Santa Clara county, California, in a seam of tale, incased in hard schistose rock. About two years ago men worked themine, selling the platinum in San Francisco for \$13 or \$15 an oance. They mashed up the tale and separated the crystals of platinum by some simple process. The schistosu rock was so hard, however, and the seam of tale so narrow -heing only from 12 to 15 inches white-that the men were compelled to give up the work as unprofitable. But the professor has an idea that by the application of proper instruments the mine might be made to pay. The soum although narrow where explored, might width as depth was gained. At any rate, that probability would be in favor of the

It is also stated on the same authority that in Trinity as Humboldt counties, California, in the early days, the gold was so heavily alloyed with drift platinum that the purclusers of gold dust, not knowing the value of platinum, frequently refused to buy the alloy at all. Sometimes the gold would be alloyed to such an extent that it would not fetch more than \$3 or \$4 an ounce. The presence of platinum joined with the gold of these localities leads Prof. Stewart to think that a body of the mineral plight be found there it looked for. No platinum has yet tem found in Nevada.

THE PERSON NAMED IN bu tojamin Sillimor & COMPANY'S RE-In Cor Messrs. Johnout the Α. DOUBLANDER LESSEE platinum, which a density of 21-5 uniformity of tes Co. in various fo ent they V cont experiment min i-wold negothyd rilns of this n si n sidt to sindolg pro che > sv Hiq-eya for the went silt Rus ness med desired magnific be g HIVIE 'NOSKHOE man many control of the c of sanahi , woi Co

warm, air of the mines timber decays very rapidly, its average life being but a few years, and in some cases not more than a year. In the deep written for the Engineering and Mining Journal by Professor Benjamin Elliling and hot mines on the Comstock, the consumption of timber is enorm In 1877 the expenditure under this item was reported as \$46,276 in the Consolidated Virginia, and in 1871, in Chollar Potosi, \$83,694

cost, though it out not materially increase that so plant produce about the same effects when applied cold as at a temperature of 2. New Allor or Plants-Isinity roa THE Metric Units-

2. An immersion of 24 hours in a solution of 200 grains per liter gives

as good results as a longer immersion and stronger solution

Without preparation, the average duration of oak was 41 years; of 3. Pallaceus is Unexampled Masses—Occasion of Hudbook by Pallaceus was noted. 2 years: nine charge moder 14. years again 6 to 2 years.

beech, 2 years; pine, cherry, poplar, 11/2 years; acacia, 6 to 9 months; Experiments were also made with lime as a preservative, but for oak sulphate of iron was found always preferable to it. On other woods lime uces better results than sulphate of iron for an immersion of one day

THE RABER METALS AT THE PARIS EXPOSITION.

PLAYING AND ITS ASSOCIATE METALS—MIDNES, JOHNSON, MATHET & COMPANY'S REMAKRAHER EXHIBIT—FUSION OF HUGE INDOORS OF PLATINUM BY THE OXY-HYDROGEN BLOW-PIR.

Consoluted Virginia, and in 1871, in closure roton, 883,684

The whe leave of no effective effect being much to decrease this enomenous of the producing the duration of timber by trensing it with any of the known preservative of Experiments upon the effect of these difference of the producing of the state of the preservative with the scalability of the preservative with the scalability of the preservative with the scalability of the preservative with the scalability of the preservative with sea made at the Commentry colliferis in Prance, and ear prescrutive was made at the Commentry collected in Prance, and they afford much valuable information.

We summarize the results of these expectanesis, in order to show our present present the present present present the present present present the present present present present present the present presen try experiments to increase considerably, sometimes doubling, the life of calc, though it did not materially increase that of pine. It was found to

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2. Dar Autor or Paras-humer was no Herno Dens.

3. Once thather that without preservative lasts but two years before nationing sings of decay, will last 30 years after immersion in suphasto from. It quadruples the life of once interpretation in suphasto from the continued of th measures possesses.

as good results as a longer immersion and stronger solution.

The treatment is as effective over one on only wood, and on plus as for the properties of the Platinum is a metal found in the cold washings wherever allowed cold

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THE INOXIDATION OF IRON, AND THE COATING OF METALS AND OTHER SURFACES WITH PLA-TINUM, BY THE PROCESSES OF MONS, DODE.

the objectionable oxide or rust upon the surface treated. On this the metal to be applied depodits itself. But the layer of the outer correlate of metal is never certified good that it is never certified got rid of. If the outer correlate of metal is never certified got rid of. If the outer certified of the object coated, as may be frequently observed and the lace from, and in all cases the coating of deposited metal coated to a sufficient thickness to contexted the apontaneous oxidatile and the outer of th

oxidation primarily due to the seld used in the galvanic process.

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earth, they have orders to proceed straightway to the interior:

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Max 54, 1870.

SCIENTIFIC AMERICAN SUPPLIBIENT, No. 177.

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PLATINUM IN THE UNITED STATES,

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Notice was taken some fame. We all the Billowin circular letter of length you he regard of the Billowin six votions parts of the country. Mr. Billowin forms used in, a fan, he has received some three thousand replies. Instead of being an extremely raw most, as hithereness which the billowing proves to be widely distributed. Instead of being an extremely raw most, as hithereness of the billowing proves the widely distributed and to poor, all plating provides the safety fails and to poor, all plating provides the safety fails and the provides of the safety of the safety fails and the provides and the North Corolline—and in these, Disclose, and countried has specified, it is soow dismits, Colonials, Art. 2000. [New Mexica, and also in Millowing Colonials, Art. 2000. [New Mexica, and also in fails provides of the provides Notice was taken some time since of Mr. Edison's circu-

2008, New Mexico, and also in British Columbia.

Be in found where gold cozers, and is a frequent residual
of gold mining, especially placer mining. Mr. Edites in
thinks he may gold 2009. Be, a year from Chaleso mined to the contract of the contract of the contract of the contract of the contract of posterior and the place of the cutter our gold mines will supply more than will be required. The possible uses of this metal in the arts, however, are so nume-

possible uses of this metal in the arts, however, are so numerous that there is no chager of an oversupply.

In addition to platinum Mr. Ellicon finds, among the large number of samples received delity, many other valuable metals and inhereals, so that his researches in this direction are likely to result in increasing greatly the resources of our country in respect to the rarer and more costly minerals and metals.

Henderson Courier: Several car loads of corundrum and ziron have been shipped from this county to Thomas F. Edison, the natcates of the phonograph and the electric light during the past week.—Mr. Eugene Stradley brought to our office on Tuesday a beet that titled the beam af fifteen pounds,

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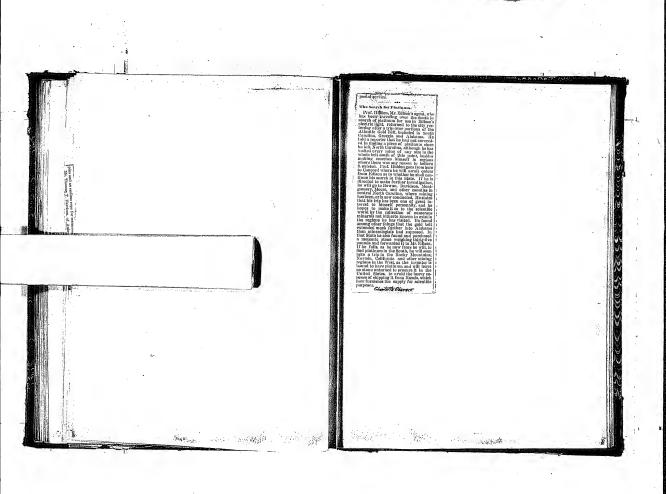
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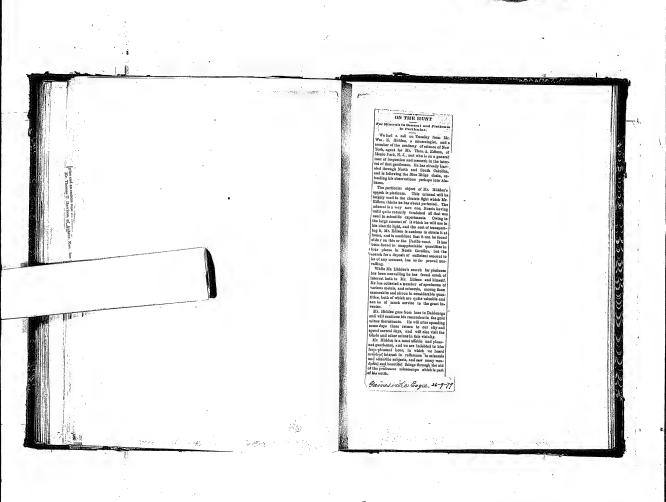
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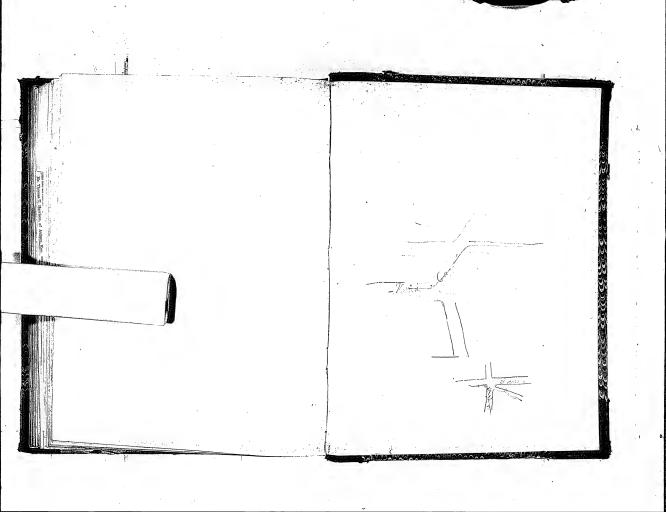






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Scrapbook, Cat. 1031

This scrapbook covers the period 1876-1878. It contains elippings about the phonograph, other Edition acoustic devices, the telephone and telegraph litigation involving Edison's quadruplex. There are also articles about Edison's Menio Park laboratory, Miscellanous terms include a bout Edison's Menio Park laboratory, Miscellanous terms include deep honograph before the Society of Telegraph Engineers in London; a permentited "An Utersance by the Edison Phonograph" an Edison memorandum about tellurium; circulars; electric pen advertisements; and the electric pen. The book contains 100 numbered pages.

THE REDUCTION RATIO FOR THIS DOCUMENT IS 16:1

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yery short distance from the soft ben core, and is covered by a month-yecc. Across the other end of the hele at a similar distance from the core is placed a this iron disc (a) which is also covered by a month-place. On a current belong passed through the coll-displarages this opposition acts as a telephone, and messages can be sent from either side of it.



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s. Iron core. s. Coll of wine. 5. Coll displyages

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voice were transmitted, but the quality was lost. The instrument they had at the Opera House for the reconverting of the electric waves into musical ones, was similar in construction to un old style dufciner. A small metal dram, flanged on both edges, is re-volved by a crank, and carries on its surface a narrow fillet of paper which has been steeped in a chemical solution. By means of R. a difference in friction is obtained, that d-, is to say, the current appears to lubricate the paper and destroy its normal friction to a great extent, thus making it possible for the operator to control it by mrane of a lever. The drain which revolves, outwardly from the someling board, carries the paper under a spring attached to a brase arm of the rounding board, the friction tending to draw the arm toward the drum. As this arm is strongly attached to the sounding board, the board is bowed outward and maintains that position so long as the friction is imposed on the spring of the arm. To release this arm, thus permitting the board to go back to its normal position and obtaining a vibration, the electric current is made to poss through the paper at the point of friction by atteneting the line wire to the arm and the earth wire to the dram. The difference of friction at the ugint of contact between the paper and notes of the instantaneous, that the highest

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reproducting it any lister was considerable. For instance. A mouth piece like time of the telephone is used, but having greater vibrating power. In the center of the displangar a sharp point works out in fell which surrounds a brass cylinder, containing the production. takeing instentions. Thus the spoken words are recorded by industions made by the vi-tenting point in Do tin fell. They can be respoken a countless number of times. Much amusement was recatedly its reciting and aniging some very familia, pieces—"Mary had a Little Lamb," &c., &c. "The construction of the instrument is very simply un electrie current being measury—nurely, me-chanical discovery. Its possibilities are in limited—the leginning of semothing greats. then has yet been accomplished in that line by man. Many people were present from ant of lown: The Y. M. C. A. are to be congratulated on one of the most successful

entertainments ever given in the Opens

NEW YORK DAILY TRIBUT THE SPEAKING TELEPHONE

FIRST LECTURE OF PROP.

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Edison's Latest Invention.

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"The state of the distribution," which the state of the place and, "you can be all factors the state of the design of the design of the state of the

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Resulter Manie by Meines of the Total Beautiful Manie by Meines of the Total Beautiful Manie Man was attached russ parallel to that being used for the purposes of the concert for six miles, between this city and Troy, but does not any where come in contact with it. The other russ parallel for the whole distance between here and New Xork, being attached to the same pole. The music on the latter wire was naturally much more loud and distinct than on the other, though the effect and iddinkt than on the other, though the effect reas excellent of high. As number of familiar airs were heard, such as "I dreamt I dwelt in Martie Hall", "duthless Mavorenes", "Hone, Sweet Homes", "Mareillidio Hymno", "Then you'll remoder me." Boldendy there was a creation of misical sounds, and on longiny of the Troy effect was found that the wire had justed somewhere, and that the number of the processor of the control the Trop which twas found that the wifes had governed to the control of the contr

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106 % 108 Geade St NEW York March 20th 1877 Mess. W. F. adams Hoo. 59 Murry of 50 I love my Moul Gentlemen Your communication of 16th inot requesting Lean bine us to express (upon papyrographic paper) our opinion as to the transministry demonstry leveling from the ments of the taky rogerful of schured from you we most to the great on left actions metions of our Papiperographs cheerfully complywith, We wonder it a wonderfully has given in . It has now a bear in week his more practical and valuable investion. It's employ a lad to do nothing the more to print with it autographic circular and de when little of the impagner, or herfect fac-In differently for me he disquessed winter it, It's fixed similes of whatever we with out, nechaosing in West without homoging specially, are some home corrections of metation. Lethography, existic for work immercial prospect copies of a or animing un harrown . We are inviting thousands of circulars every week and, in point of economy although ; equal or sugarior to the best we have one of your most infunctive machines. it more than caved with fall value in fainling the first month. as a method friend & water does not command the atten -tion, and in no degree compares otherwise with it in importance, as the continued increase in the sales of our chilly governous inagramments. New Process Baking townier, alone is a most convincing had not be beared of a interior or response proof. We wish you every success in its widespread introduction. wien summer topics our ady for the amount Yours Very Fruly tts Hustin

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Dear fir: Whenever you have a guartity of Eineward to send

DOMESTIC TELEGRAPH COMPANY,

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This Company having just organized with the necessary facilities, proposes, if a sufficient number of subscribers are obtained to warrant the undertaking, to establish a number of precincts in the City of Newark, N. J., with wires connecting the houses of each subscriber with the main or central office in each precinct. Each subscriber will be furnished with a small elegant instrument, which by simply pressing upon a small knoh or handle, he can summon a policeman, messenger or the fire department

We charge nothing for putting it in any ordinary house but a small rent of fifty cents per month to pay running expenses. Should you wish a messenger, policeman fire department, or any service at any time of the day or night for the low charge of fifteen cents per half hour you can summon such assistance to your office or residence within three minutes, ready to perform any service you require. from carrying a letter to arresting a burglar or putting out a fire.

The Company can also put in, should it be ordered, an automatic fire alarm which will summon assistance (of itself without being touched at all) should a fire break out, or a room become dangerously heated in premises where the proprietors are absent or asleep. Should burglars break in, we also, offer the same protection.

In buildings where watchmen are employed; the instrument may be used both to bring aid in case of necessity and to prove their faithfulness during the night, by requiring them to send a signal at stated times; should such a signal fail to come in, the policeman at our office will immediately ascertain the cause of failure.

It is useless to point out more in detail. The possession of a Domestic Telegraph Instrument largely increases the security of life and property. What chemer protection can be obtained for fifty cents per month than an apparatus which gives to its possessor, at all hours, a private watchman, a special policeman, an ever watchful fireman and inexhaustible corp: of messenger boys, to execute very order which he or she may be induced to give by necessity or inclination?

The Domestic Telegraph Co., is the invention of the eminent electrician Thos. A. Edison, Esq., of 10 and 12 Ward Street, Newark, N. J. He is also the inventor of the Gold and Stock Indicator; The Automatic Telegraph System: The Western Union Quadruplex System, by means of which four messages can be sent in different directions on one wire at the same time. He is also the inventor of the apparatus used by the American District Telegraph Co., whose uniformed messengers, can always be seen hurrying to and fro in New York. Brooklyn and other large cities.

We have only to add that the Domestic Telegraph Instruments, are simple and perfect in construction and instantaneous in action and contain every improvement that Mr. Edison's long experience in Electric Machinery can suggest and surpasses all efforts for the purposes intended.

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Fifty Cents per month will be charged for use of instrument.

For police, messenger and burglar slarm service, a charge of ifficen cents per half hour, or at that rate for time of service will be made. When the Fire Alarm service is signalled for, the charge will be two dollars for each call, and

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For the work mules January 20, 1977, and bearing that deir.

For the work model January St., NTT, and howing hild side.

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19(4) and A. The side of the property of the side of t remarkly propolational without the use of any gardeness before, and by presses, and also their cleans of their control of the

ger and there is seen a bell in presented by the medical of the property of th Given, "Microsis instelling," they may be set as clearly treather as a "Microsis in a relevant bettermine, and he a bready object and the control of the con

As encountered in this but number of the Jeremen, or two Trittanium, a trained or conserts the base industrial or two Trittanium, a trained or conserts the base industrial or two Trittanium, a trained to the street of the stre

who there is a substitution of a preference, they were Mr. Gray listrocked the telephone performance as one conserved in the contract of the electric condensates with a brief explanation of the electric and consists principles rupe which this system is formede, which enabled the auditor to understand to native the substitution of the electric state. I telephone were callinated any representation of the telephone were callinated progression, and the large mellances, who were very much improved, and their surprise and, wenter wired at this latest development of the amphilities of the electric state.

These concerts are under the management of that veterum impressente, Mr. Moarice Simboch. They are to bu given in the petimiqui drites of the country, and will undendedly power highly successful. In stilling to the tolephonic performance, Mr. Simlocch gives an excellent musical entertainment at with concert. The

concert JT 2 11

There, A. It, Barry, and A. It is a state of the state of

stronger a saw sweet as a state of the state of a billion of the state of a billion of the state

teren Iravielere and Buston. In the link in vigoraly log land, born errord in front of the spouler's deck, from which wive run to frent of the spouler's deck, from which wive run to first relightures—are superpoind from the centre of the spouler's deck from the land of the centre point of the control of the control of the centre of the

in the team.

After an address from Prof. Bell, upon the development of the tolephone, and the electrical and acoustic principles upon which it was based, his wire was connected at Borton with his laboratory, and on air was almost inneclairly heard throughput the hill, from a parior organ played in Baston;

This was first heard from the telephone on the dock, and was their successively switched into the other telephones in the half. A survey-solor of nix followed, the sound bringhou as if at a distance, but perserving the elumeteristic quality of the perfor orgon. Chemic were given perfectly, as well as single

now, the But stood that in word interment it is best in some the battery and now medium placeward the belighenic information at the results of the line. In the belighenic information at the results of the line, which is the belighenic and a doubt constraints extend. The the belighenic and a doubt constraints extend. The many constraints are the lateral to the constraint of Naw Wasser's voice was benefit throughout the sold, as if the weight of the constraints of the lateral to the constraints of the first place and the lateral to the lateral to the place of the lateral to the lateral to the constraints of the first first place and the lateral to the lateral to the the most of a predict of the Bessel Biglack Band. It the most of a predict of the Bessel Biglack Band.

Other experiments were tried successfully, which were findly terminated sooner than had been anticipated—the triegraph company requiring the use of the wire.

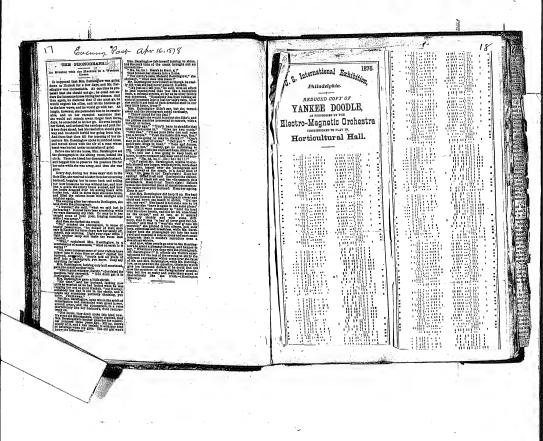
The first regular telephonic line has been put in operation between the phase of business of G. Willium, Jr., 1992 Cent street, Boshun, Mars, put his residence in Scaurville, in distance of about three miles. IR. Williams states that it works well, and that "convention can be carried on by it nearly as well as if in the same recurs." 320 Broadway, New York, Oct. 18, 1878.

The subscribers have formed a Partnership under the firm name of Hart & Haigh, for carrying on their professional business as Attorneys and Commellers at Law.

> HARMON H. HART, HENRY M. HAIGH.

J.P. Haigh has been for nine years connected with the firm of Genter, Leavey, Genen & Cone, as Managing Clerk.

X



EDISON'S ELECTRIC PEN Cuch materillacter Harr Prominent among the interesting devel 7c1-22-78

opinents of science applied to electricity is the electric pen. Since the general use of TELEGRAPHIC "TRIUMPHS. the telegraph to largely mercused the vol- A Talk With Edison, the Great in-

the chetric par. Since the general use we for the chetric part is

of Menis Park, N. J., who, about three

ed on prepared paper, and preserved for any length of time. Thus, if an operatio favorite sings a popular song to-night, the air can be recorded, and at any time afterwards reproduced in all its purity, by passing the record through a sounder.

The manufactory of the Electric Pen is tocated at No. 220 Kensio street, Chicago, Ifi., and the New York agency at No. 20 Church street, under the management of Mr. W. F. Wheeler.

The state of the control of the cont auglish Mechanic

THE TELEPHONE CONCERN

At Hodge Opera House Lisa Eventur
The singers at Medina-Tie Tuste,
in Leebper-lis Complete, RaccessThe Latest Wonder, the Takane
Phonograph.
Yesterday afternoon, a ramber of our well
known musicium, heledding Prof. Complete,
Mr. Abele, Hrs. Austle, Miss Minn Clark,
Mr. Abele, Hrs. Austle, Miss Minn Clark, Mr. and Mrs. Jesse Peterson, Mrs. Stainton; and Mes Amy Wodhums, went down to Meding, to take part in the Telephone Concert, marced for our Opera Hones in the even-They repaired to the Gueten House, Inc. watere they were much by Mr. E. H. Arnold, of Hathester, a tener of note. Imagine the surprise of the singers when they found that the " machine" into which they were to sing |-consisted of a small instrument to be held in the of an ordinary speaking tube, and no larger thin a small ten-cup. Persons necustomed. the n a small ten-cup. Persons secuntaries to using speaking tubes in their houses or business, will in a measure appreciate the difficult and unphenomi task of singing in a "latter state to whether their is also attached." similar tobs to which there is also attached at a distance of six luckes from the face a vibrator that returns a not agreeable sensaribrator that returns a not agreeable sensa-tion to the reture of hearing and the score, of feeling in the operator. This little instru-ment imports the vibrations of the human color through isolated copper which is the electric wave of the telegraph wise on which it is transmitted at will. Last evening the instrument is known as 'Its Edison Teleshone, and the most mechanical part was exhittied and explained at bright at the Opera Initietic and explained at bength at the Opera-licane, by Prof. Johnson, law versing; by its use the electric wave carried, along upon the beingaph whre was recovered into air directions similar to thus thrown into the mail instrument, and given of from, the someting board to the delight of all hearers. The Elison Tele

phone only was used in reproducing musical sounds. In connection, Bell's Talking Telephone (it not being convenient to get one of Elison's) was used in communicating between the operator in Median and the opera-tor in Lockport. A little reheated took place in the afternoon between the singers in Median and the professor with a four spatwore here, and the singers there could i believe that when the answer came back "rery pood" that it was truthful, but four it a "perfect sell," as one of the ladies remark ed. The arrival of some Lockport people who had heard the reheared in the afternoon encouraged the musicians that the affer would prove a success.

would prove a success.

There was a large sufficies at Hodge Opera House, although many were admitted hate, greatly to the annoyance of those who had read the advertisements and were on time, and too, the admittence of people while the contest was in progress, deprived many of hearing the telephone as well as they wished. Although many were disappointed in the power of the Telephone, there expectations having been relect too high, still it was the universal opicion that it was a marvelous in-

ryl . The instrument could not re co the words of a sung so as to be at all Alberto the andlence but the tupe was very distinct and best when the words were emitted The cornet solo was reproduced very disnetly and well," "The Sweet Byo and Bye" ing bosultful. The small instrument con ing the vibrator, heretofore described, is eld in the sound opening of the cornet eaving the player to his necustomed moveent, and hence he can play neturally and clearly ; whereas the singer is confirm to in tonvient space and ununtural control of the elos. The turns were reproduced quite disthickly, although they were many skips as the singing proceeded. There present declared is the programme was carried out. Mrs. C. alaton's hummed medley was particularly

Wadhams was clearly recognized.

PERSONAL PROPERTY OF PROPERTY. was if possible the most interesting and wonrefut must of the enterteinment. It is a at about six weeks, consisting of a shaft, on which there is a brass cylinder, (in each of which is out a corresponding thread of thick is cut a corresponding thread or beat thirty second part of an fact which, and the matter plateness point, placed at an infinitely small distance away and connected and a ribertor, similar to the one tred in the Telephone, with a steel point governed by a Triphium, with a sixel point governed by n with the other wire, whenever the plate is spring. A show of the following count the threat pringle is the principle is the brass, prijuder, and by means of the skills the point of the whenter records clearly instrument is no sensuling beam, the instructions of the lumma vector is required by the principle in the lumma vector is required by the principle in the lumma vector is required threat the state of the principle in the principle is the governor threat in the contract of the principle is the principle in the principle in the principle in the principle is the principle in the principle in the principle is the principle in the principle in the principle is the principle in the principle in the principle is the principle in the principle in the principle is the principle in the principle in the principle is the principle in the principle in the principle is the principle in the principle in the principle is the principle in the principle in the principle is the principle in the principle is the principle in the principle in the principle is the principle in the principle in the principle is the principle in the principle in the principle is the principle in the principle in the principle is the principle in the prin on the un test as see george testers re-bounding based to and passes upon, a slip The whether is turned theck, and when re-bounding based to and passes upon, a slip untersing the grooved surface of the sin full of chambeally payarred paper passing over a eproduces the sounds distinctly and clearly. Verses of poetry, parts of speech, length, crowler, and even two whole some tere reproduced with marricus coursey and distinctures. Mr. Issue Ellis wing the song of "Old Uncle Ned" in the sight and hearing of the whole nce, which the Phonograph reproduced with Mr. Eiln's peculiar intenstice. The tin day the tones indicated there sea this must prove a very useful loven-

PART III - NUMB ON THE STACE, by the persons who render the music of Me dian, was on necount of the suns storm, dothe principle of the writing all of the billes the principle of the telephone; the illustraferrol, and up to the validing all of the initial and all of the gatheness, excepting van, learn initial and in the gatheness, excepting van, learn initiations, Computing van, learn initiations, and the property of the property of the computing van learn initiations, (April 1) the gratheness that of cooled with. The mathematication of contrast of the property of the returned at 4 obtained in A. A., informs as a six subset of virts and preceded from the learn of the points in their return-tiation of the contrast of the c aptu concert to the people of the Gorton ouse, also that all were made very consect. able by Mr. Gorton.

Thus we have chronicled another success to metagerial career of Mr. U. S. Guild, is on the elect to bring us all now and Homenia.

WONDERS OF SOUND.

Phonograph-Bottled up Conversation-The Recording Angel's Occupation Gone-What next ?

The Telephone concert on Saturday ov ing, was a marked success. There was a felr andience, present and all were complete. ly satisfied, and had the character of the or etalerizant been derkultedy know before hand, many more people would have been resent in the Hall. The electric and account the features of the entertainment were new reled by a clear and interesting expect of the construction and principles of Edi-son's musical telephone, Edison's spraking telephone, Ellison's Phonograph and Bell's smeaking Telephone, by Mr. E. H. Johnson

is described in the most simple way as follows: The transmitting instrument is a mouth piece, at one end of which is a vibrating plate of thin Iron—which is connected with one wire of the line. A platform point on the plate makes and breaks estate the with the other wire, whenever the plate is moving dram. By a principle of electrical science it is found that when an electric current is transmitted through this paper, by means of connections with the abovementioned lever and the modal drum, the specific less facilities and allow easily under; given of the cylinder. The specific the time lever. When there is never until the lever, which is the lever of the cylinder. The specific the lever grint the paper and through our time of the cylinder cylinder is the cylinder of the cylinder cylinder cylinder is the cylinder cylinder cylinder is the cylinder mentioned lever and the metal dram, the foll may be preserved, and reproduce at any stant breaking and re-forming of that curstant breaking and resorming or the same root at Warren would communicate an equal root at Warren would communicate an equal root at the same like the same like here and reproduce perfectly the sound which caused those vibrations,

After Mr. Johnson's clear explanation that when they found themselves detailed singres' stationed in the Western Union Tel-tory made the best of it and gave as in-egreph office, at Worren. Some of the simegraph office, at Warren. Some of the nin-Sale, especially that amp by Miss Lucy James and by Mrs. Waters, was very distinctly heard. The familiar size of "Street by and by," "We shall meet beyond the river," and other music of a similar character secured to produce the less effect. The words of the scage strig were of course not transmitted, but the tones were so distinct that it accused at three as if the words were actually articnisted. Some cornet music was also, furtished, but this was hardly up to the stand-

MARY CHIPPING TO BE AND

THE CONCERT

ent being solife-li what Builted. The gentleman was ar motoreiguer, judging from the fact of his Sanding Music 28 Miles on a Wire-The mon-sequentance with the patriotic sire of " Yanker Passile" and the "Star Spangle Banner," During the concert the Bell; speaking toleydone was used by 1Mr. Johnon, to converse with the gent

Warren end of the wire. At the conclusion of the telephone exhibition Mr. Johnson Introdu

PHONOGRAPH. This instrument is one of the latest, mosimportant and wonderful inventions of modern science. The workings of the in stranoral are astonishing, and its construction is wonderfully simple. The instrument red by Mr. Johnson Saturday evening is the first one ever made, in iron and steel not therefore, its construction is somewhat crude. It consists of a bruss cylinder or barrel, about four laties in diameter, placed upon a revolving iron shaft of three feet or reore in length and about an inch and a half through. The shaft is made to revolve by means of a hand creak at one end, stradiness of motion being given to it by means of a hency balance-wheel at the other extremity. The brass cylinder is threaded with soiral envisesment our thiere. second of an inch in width, comparing I pitch to a similar thread upon the shaft, so that as the phoft revolves, the evilor moves upon it horizontally. of a movable arm attached to the base of the phonograph is placed a speaking disk such as is used in the telephone with a piece of vitesting metal underneath, and upon this plate is a small metalic point. This is the whole mechine, and it is operated in this number : A piece of thin tinfoil is wrances curefully around the brees cylinder and be cared in its place. The movesble arm thru adjusted so that the metallic point of grips the pupes and track that a con-ling board. It will be seen that a con-line closers, at the same time turning the crunk. The words which he spenks or other somels which he may make, cause the nictal plate in the disk to vibrate, and these vibrations communicated to the point resting

means of the revolving shaft to its starting point. The machine is set again set in metion, and the point traveling over the inde tations in the tin fell produces sgain the same vibrations of the metal plate, registered upon the cylinder, and as these vibrations are indentical with the ones produced by speaking into the month of the disk, of course the sounds prosuced by the rations must be the same, and so for the re-production of the spoken words, distinetly amiliate to any one standing near the and, the reportery, of the gendemin who

ico turning the machine by hand at the of speed increasing or diminishing the num-

ber of vibrations per second, and thus rais? gor lowering the pitch.

When this discovery is perfected machines touching the pixte and connect.

When this discovery is perfected machines. ing or lowering the pitch. will be made (in fact one is already completed) | ed torus by clock-work, thereby insuring a uni. plate vibrating, opens and closes the cir-

The possibilities of the phonograph are ath practically and otherwise is beyond sent conception. A firm in Connecticut a elective contracted to not it into clocks. so that the hours may be spoken instead of which is a sounding board, which is causstruck; it can easily be introduced into muse | ed to vibrate in accord with the electric leal boxes, and its value as a witness in a waves by a curious device. It was found

aller cases is beyond emestion. ____ ny Kinaco Fee 24. 78

The through it is a trained at p a some content of the participation of the content of the participation of the content of the participation of the particip and hand them down to datepe generali uses the generalisest to pay 100 coats on the The appears to be atterif beyond its reach.

The Telephone and Phonograph, WONDERS OF THE NINETEENTH CENTURY.
CALLY THE EXHIBITION Given at the Hodge Opera House.

At the hour appointed for the opening of 1, "Tis Hard to Give the May!." At the hour-appointed for the opening of the Editor Science of the Collection Control of the Editor Science on content at the House and the Editor Science of the Editor Science by the wind until the 9dewarks in many placet, were blockeded. Nowththanalling in this, by seven ordered the Open House, was well tilted by an anilorne composed, in the units, of Leckports most column of the open of Leckports and the column of the column been well understood for a long time that remedled this very easily. He shouled

every tone ultered has a distinct and ex"Hallos" to the singers, and got the renet number of vibrations. Whenever ply "Well." Said he, "There is tousythese vibrations are rejected, the
tous ly thing the matter with the intruspent' at
purpolaced. At one and of the wired Medius, and the sound cones irregular." wigge the singers are stationed, in this

case at Medius, sixteen miles away, there is a brass tube with a mouth piece, direct Twice turning the machine by hand at the is a wine the voice against a plate of tin type an interest press; a greater or lessor rate ing the voice against a plate of tin type which ribrates in exact accord with the tones thrown against it. Immediately in front of this plate is a steel point almost

form speed of registration and reproduction, cult in exact time with the vibrations and and consequently the quality of the tones; thus produces electric waves which are reproduced will be the same as those first distinct the whole length of the circuit, be it three miles or o possibilities of the phonograph are musical telephone, which was stationed at limitiese, and the application of it the Opera House, is this place, is a simple apparatus for transferring these electele waves back into sound waves again It consists of a hollow box, the front of urt of law in breach of promise suits and, that a strip of paper sasked in certain suit become inbriested by the dis-

ever an electric current was passed through sounding board of the telephone against a To planegraph is an investion of gravity and this paper and drawing the paper under it, the point would eath the paper

Mr. JOHNSON shouted "Halloo?" to the showers in Median, and they "Well." Mr. JOHNSON said "All rendy." A cornet solo, the "Sweet Bye and Bye," was first given by Mr. ABELE, in Medius, and it was distinctly heard in all parts of the Opera House here, with all its variations. Some one at Medina asked "How was that?" Mr. JOHNSON replied, "Pretty good. Give us the next." The singers was as follows:

a the main, of Lockport's most cultured in Oran Sectial, Violet in Superior Property of the Pr assistant, anneared upon the stage and. In the singing the voice alone was heard taking his stand by the side of the tule- and not the words. With one exception phone explained its principles. He said that the songs were simply hummed into the

DISAPPOINTMENT. According to the programme the singers were to arrive from Medica shortly after f the sound surver. It has there were several breaks. Mr. Johnson

All west right afterwards, and the andlence was greatly amused and enter-tained. Of course the music was not callying, so to speak, but it was the illustration of a wonderful scientific principle that on-

tertained. After the programme had been concluded, the singers were asked what time they would leave Medina for Lockport, and the reply came, "8:43." A cornet solo, "Yankee Doodle," concluded the concert. Mr. JOHNSON then luvited any who might desire to test the workings of the telone personally, to come onto the stage and do so. Mr. ANDREW TENBROOK of the American Hotel, responded, and be talked back and forth with the people in Medina without difficult.y

Mr. C. S. Guillo of this city, under whose anypices the concurt was given, was in Medina, and he announced by the teleshone to the andlence here, that Will. CAULETON would lecture at the Hodge Opera House next Monday ovening under the auspices of the Jewett Scientific Socie ty-"Good night" was then exchanged. THE PHONOGRAPH.

This was wonderful, but a still more iderful muchine is the phonograph which was next exhibited. In this no cleetricity is used. It is simply a machine, and so simple that all were astonished at its workings. It consists of a cylinder or which there is a spiral groove running around it from one end to the other. cylinder is covered with a sheet of tin-fell, Against this foll and following the greeve of the cylinder is placed a fine point connected with a vibrating plate of the type, against which the voice is thrown. By prowing the voice against this vibrating cvll plate and revolving the der at the same time, the the point transfers these vibrations to the tin foli marking them with little indentations in To reproduce the round the point is piaced back at the place of beginning, and the cylinder being turned, the point follows in and out of these indenta as causing the plate to vibrate exactly as before and reproducing the same son By means of a paper cone placed over the vibrating plates there tones were magni-

fiel so that the audience could hear words distinctly. The operator made a lengthy speech into the instrument, sang "Mary Had a Little Lamb," mitation of a rooster, barked like a dog and gave various other sounds which were luced exactly by the machine, the inflettion, tone of voice and all being exactly preserved.

o'clock and give a second concert on the Opera House stage, but just about the time they were 'expected a disputch was re-Rochuster yet. Of course this was a great disappointment, but it was all on account of the heavy storm, and no one was to

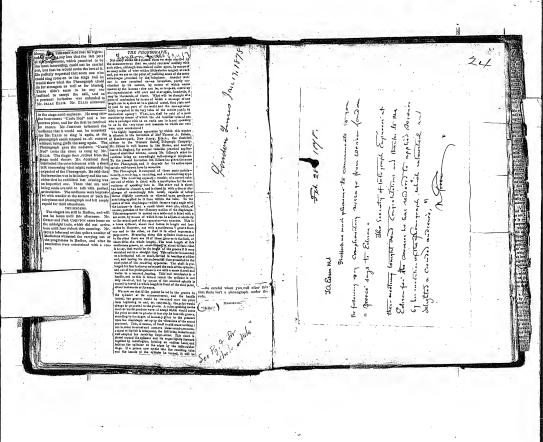


Figure an Telephone.

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Chronication of January 2014 and 1915 a

Grant and the portion was considered by the control of the control

and the crank turned, with the followin

And who do you think was there?
The butcher, the baker,
The candir-thick maker,
They all jumped out of a rotten potato.

The Victorial of the West Control of the Control of

strument seed; beek in a voices of the same in the same into "Fio Professor, in a deep." To illustrate, in the mouthpleen the Breat voice, racticed in the mouthpleen the Breat verse of the Breat verse of the Breat verse of the Breat verse of the Breat verse of the Breat verse of the Breat verse of the Breat verse of the Breat verse of the Breat verse in the Breat verse of long to select an analysis to traves, a solution to the select the district and select the district and the select the district and the select the district and the select the s

White these affecting words were post-ing the professor shouted into the formed soveral patient exclanations. At the close of the verse, the sylinder and its matrix were reset, and the refes-tion update exame out of the fundamental reputations and all, as followed in the conruptions and all, as follows:
A miniter of the lagitum by Aying in Aleier,
— 'O, into the lagitum by Aying in Aleier,
— 'O, into the 'o' committy' unresing, there
was a 'Oh, given in a real,'
— 'United the 'o' committy' unresing, there
we mann's tears,
— 'Dyr '0p1',

--"DIT UP! "

But a concrete steed bands him with his bit is a control steed bands with a control with a contro

And bent with pitying glunces to hear what he might-

The dying soldier initered, and he took that

"Police! Police!" ----- Po-lantel, lifet!" And he said, "I herer more shall see my even, my saitive "Oh, put hind out?" —— "Oh" cork your land," put?"

The impressible to describe the Indi-crommon of the effect. The Professional Human Indiana and Indiana Indiana Indiana Human Indiana Indiana Indiana Indiana Human Indiana Indiana Indiana Indiana Human Indiana Indi

where the second property of the control of the con

"The old you discover the principles" as "By the severe and such as "Mark the "By the severe and them," and the principles of the principl

Philadelphia Poess Mar 9.

ANTHOUGH MAN TO SELECT A CONTROLL OF THE AREA OF THE A

Chic Record mar 9

A MECHANICAL GOSTI CO. disen's Phonograph, that Repeats Ver-hadm Everything Poured Into The Mouth.

Twenth rather by the inventor or that tills guaratus then Persident, and the speaker sisted to a stroll cash-door fremework stand-ger on a bullet in the private offer of Heavy or as a bullet in the private offer of Heavy

"Mary had a little land," etc.

The control of the co

TELEPHONIC GOSSIF.

TREATHONIC GOSSIF.

It seemed improbable that the recent invasion of the secret recesses of nature by the
telephone could long pass without notice from
Nature herself. She was certain to be heard from by the new method of communication.
The expectation is fulfilled. She made a re-The expectation is fulfilled. She made a re-mark a day or two ago to a gentleman of this city, who happened to have the beliephone at his ear during a meteorological frest. An un-expected that of lightning and peat of thun-der startled, the town. It became a person to the complete the startled of the complete that the commatter to the gentleman using the telephone; the electric current, reinforced by this gratui-tous addition, went for him vigorously; and the remark that Nature made in his car was so shorp that he was deaf of some time aftershort that he was deaf of some time steer-rads and ecold hear nothing eles. The inci-dent suggests a new use for the subspinces; on the homo pathle preneple, if it will cause don-ness perhaps it will cure it. The sow remedy, however, will be used without and people who are not deaf will wish to neclect them-selves from this pop profess supply of light-ning in their incises. Lightning being now turned us, so to peok! for donnelie use, there must be some way of turning it off when the sumply is excessive. The owners of telephones will have to mapp! the guard switches which are attached to the telegraph whee to conduct away superficous electricity? Unless this is

dore the telephone wires will, disring heavy electric disturbances, entry coin the property of the size of the size of the size of the size of the size of the size of the size of the size of the size of the size of the word; it is already remarked insize of the word; it is already remarked destroy all privacy, for when the conducting wires are multiplied all over the city, a person's transite intended only for a transite form of the size of the s friend may be scattered all about and bebrard by thousakes; the telephone, for necessal and society gessip, will thus become a formidable rival of the newspaper. But a recent writer, has discovered another use for the telephone. which may not be so agreeable. It can be used to top the telegroph wires and take off the to tay the tellegraph when and this off the posing insurage. Not all missages can be than eachword; the high speck litters are too than eachword; the high speck litters are too than eachword; the high speck litters are too than eachword; the considerable portion of the ordinary amenge are not one before the position of the ordinary amenge are no less that yet all the same and the laterage are not beautiful to still be same and the laterage are not beautiful. The will be same and the laterage are not beautiful to same and the laterage are not beautiful. The same are not to be a same and the laterage are not beautiful. The laterage are not to be a same and the laterage are not to a same and the laterage are not to be a same and the laterage are not to be a same and the laterage are not to be a same and the laterage are not to be a same and the laterage are not to be a same and the laterage are not to be a same and the laterage are n

BOTTLED TALK.

White of some - mar A SPEAKING PHONOGRAPH AT WORK

Shrwing Bow in Stereotype Tear Total Utterance. Making a Plate From Which a Perfect Repra-Canelina of Your Speech Can be Had When You Are in the Grays.

Were the verselous Munchausen in attendance Were the veneduca Macchaness in attendance and activations which was given spinesky in the 70th probability of the 70th probab travelers might not meet us in the marrow passage. He blow with all his raight, but his endeavors He blow with all his raight, but his entervors were in vain; he could not sanke the hen sound, which was unaccountable and rather unfortu-tate, for soon after we found mather seach con-ing the other way." After telling how he got which was necessariled and refer underlied with a second of the property of the second of the property of the second of the property of the second of the property of the second of the property of the second of the property of the second of the property of the second of the property of the second of the property of the second of the property of the

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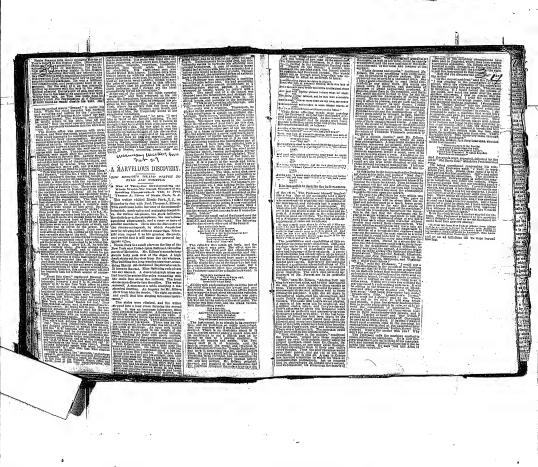
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The Allace In Section

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and show not occupy more space thank of the state of the

The conditiveness to assume a contraction of the photograph and types will so a relicion at its order to desire it.

As the photograph and types will not relieve the contraction of the

hist systable of recorded time. With what densure, for example, would we not lis-cu to the words of PLATO or SOCHATES; of

Jerrys Crean or Creamer of Guychny the Great or Maryin Latrices of G of Danielo on Vanca port had phonographs of Prussin or NaroLEON, and phonographs; here, contemporary with them to take down their sayings. The plossibilities of this wonderful little instrument, as it will be perfected, herouse benithering to the imagination, for its practical uses are sin-oly inschangible. ply inexhaustible.

Menchester Exammer and times

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THE SHELLSBURG REGORD

| OF-7. SMITH. Pallianer. | The reply was a negative. The groups the place to go the process of the place to go the pla THE MADELIA RELIGIOUR.

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though some tragedian was endeavor A seldice of the legion lay dying in Algiera.
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magas says.
The dying option followed and he book that oursAnd he says. I represent simil see my own, my
rative krait, taken to some distant.
Take a refresh of mire.
For I was lown at Binger-at Binger on the

While these affecting words were pouring out the Professor shouted into the funnel several petilant oxelamations. At the close of the verse the cylinder and its matrix were reset, and the recitation again came, out of the funnel, interruptions and and, as follows: A subiler of the legists key dring in Algiers, — "Oh, shut yet — "Oh, her your head?" There was look of woman's musica, there was look of woman's musica, there was look of Uh, pare us a rook?

And bent with pitying glances to hear what he might only receive poetry?" --- " Let The dying soldier failured, and he took that

--- "Pulsed Policy!"---- "Pohand!"

high-tis in hyporable to describe the indi-crommest of the effect. The Professor "To a created degree," said Mr-North and the gree, "said Mr-wer he pleased, turn the machine over an amount of the green and the green and amount though the machine court, even if more though the machine court, even if the or reporter night-dictate a column at midnight, and send the machine up to the cognetion, who

THE SPEAKING PHONOGRAPH Institution of the state of the s

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The market Bank are described to the control of the

The time support that the freezes as uniform the converge and for the converge and for the converge and for the converge and for the converge and the converge

Have tried again, Cant pur give us some ideas when to get at it where

The Cause of gailing a soil cock in Bull, or cook in a Roach story -

Notifith funding the diagreeable weather and evening a large and leaves at the displace covers at N. James Hall, and Judge colephone concert as St. Jannes Hall, and judg-ing from the frequent heavity outbursts of spillarses, a majority of those present were cell entertained. As stated by as yesteraby the singing station or the place where the performers were located, was in Rochester, and the seamed were transmitted over a West-corn Hubber wite. The interments—the fels-

done and phonograph, which have stready been described in these columns—were leen fed on the stage, and managed by Prof. E. H. ahmann. Johnson.

John Special States of the suppersure about a significant proceeded to give a simple and proceeded to give a simple and consection-try testure on the various

Second described in these column-revers how below the stage, and small he properties a described in the stage, and small he properties of the stage

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Rochester Herrican

SINOING AND TALKING BY MAGHINERY

PRACTICAL EXPERIMENTS WITH THE PROSE PRACTICAL EXPENSERTS STITE THE PROOF.

GRAPH DESCRIPTION DEVELOR.

Fire Restrictions on Page 181,

We publish to dong service of prictions of Profewart A. Editor's Nucocytop, showing its action.

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THE DOLLAR OF OUR DADDIES.

THE DEBALE OF ORE ADDRESS.

THE SHARE OF THE SEA MARIE PRIVATE AT THE PRIVATE times who said expected new order of the feethers.

The similar brokers and exchange offices on Kanau street and charders are already displaying the new dollars in their windows of offering time for sain as a previation of the and ion cents, that being probably later value for a time as concentrate and pecket process.

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ti ARREST ON A CHARGE OF BURISDE

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THE INDIVIDUAL CONTROLL THE REVOLUTION AND THE RE

day, at ten o'clock, which was granted, with the usclay, as ten o'clock, which was granted, with the me-derstanding that final, sergements in the case would then be presented.

After the transaction of unimportant legislative trainers the femine adjourned until Manday.

NEW YORK BALARIES

New York actions and Atlanting Allant, March 15.—The sub-committee of the Assembly Committee on Citles will meet to morrow at the City Hall, New York, for a hearing on the New York Solary tell,

THREE LITTLE ITALIAN GIRLS."

THE LITTLE FIRALIS GILLS.

THE RESTRICTS IN THE CHIMALE FIRSTTHE CHIMALE FIRSTTHE RESTRICTS IN THE CHIMALE FIRSTTHE CHIMAL

POLICE AND EXCISE DOINGS IN BESSELTS.

THE ADD SCIENCE MUSICAL PROPERTY BORNEY. The animal property of the Brooking Board of Tables and Technic Commitments and the account of the Brooking Board of Tables and Technic Commitments and the account of the acco

THE LATE OFFICE STEEL.

Mr. Adden, the tenor, was found to-sky by a Granou reporter at the fit, theirs fitted, on Washington reporter at the fit, theirs fitted, on Washington and their steel THE LATE GREEKS OFFICE.

MARK LEGARD AGAIN.
William F. Howe to-day applied to Judge Decolus for an order appointing him guardian oil affering of Mayol Leonard; also, that he be given notherly to attend to her professional education activities acted to her reput

was appeliated for two o'wlock at irr. C. V. Cross, of the Bazatoga at the center of Broolway and b. Hr. Lord stated that he had le latine regular at one obser, but impossible. The Burriogale and

Alberger has a private tele SINGING AND TALKING BY HACHINERY. Strip of tinfoil containing the above sentance Fig 3 Mouthpiece and cylinder. EXHIBITING THE MACHINE AT THE OFFICE OF THE TELEFRONE COMPANY IN THE TRIBUNE BUILDING EDISON'S SPEAKING PHONOGRAPH.

0 ES (

El Ponografo.

El ultimo citargo del siglo XIX promete ser una época notabilisame por sus mavillosos invertos. No bien homos oddo
socreta de la mégica pota sela del feldiona,
socreta de la mégica pota sela del feldiona,
virtuid del cana la transitation de la meny por unato la comunicación oral á enalguere distancia, no es ya un imposible;
cuando un nuevo deseubránicale, massisombroso-todaris, visos é offereres à unuesombroso-todaris, visos é offereres à unue-

tra consideration. i consinerazion. El norteamericano Edison acaba de in-El norteamericano Edison acaba ue in-ventor un mecanismo de tal naturaleza que, combinado con un telefono, al propio tiemus que hace audibles done

habri unnester el orador de la habilidad del taquigrafo, cuyo erto queda superado nor la admirable procision y celoridad do este ingunioso aparato. Ni se crea esto lo mas sorprendente. El autor asi mismo nos anuncia la no menor ficilitàni de sai fastrumento para hyproducir tambie, en todo tiempo per ramato que sea, yá la bonancible fraso-tomosol passionnoda arriaqued su distur-so, con el idéntico sonido y tinubro de roz-cexto al en que fite pronucidad; siendo naí que aun potriamos escucias los arre-batadores tones de Ciesero y Demástenza, é la nabresa conceido el fonderos por el de equallo previores modelos de eloquenmenor facilidad de su instrumento para

Si so desso formar una luver idea do sul sources sistema, inaginese un tubo un control sistema, inaginese un tubo un control sistema, inaginese un tubo un control si sul sistema por un ficcibido distringuna de insonal, of can llevon en an cuntro una punto semajouta ó un cincel, y puesta en control de una utrin de papid. Esta tibes, on figuras de V, formado de lo largo, ser demoitido ten un trin de papid. Esta tibes, on figuras de V, formado de lo largo, ser cerrate, junta sobre un reduder destado del cincel y, se deservariado uniformo pero ristema, punto de la control d Si se desea formar una brove idea de

vibrar el diafragma, à la vez que al cincel mus ó menos juntas y profundas, segun el-grado de velocidad é intensidad de las articulaciones proferidas en la boquilla."

Abora bien: si tales hendeduras correcta

mente representan las vibraciones causedas por la voz, y si mediante ellas es posible reproducir ignales "ribraciones en el diafragua de otro instrumento, tendo

Lancaster Intelligencer.

MONDAY RVEN'O, PER. 25, 1878. A Marrelans Discovery.

The Bedloo's Island Statue to Talk and

"Service of the service he state of the s

The department of the control of the

A poldler of the legion lay dying in Algres,
"Vil, sint up?" "Sh, buy your book!
Three was book of women's meaning, there we look of
"Oh, give us a reat."
"Oh, give us a reat."
"Oh, give us a reat." Hat's, commute stood/healed him while his life ideal chies!
..."On what are you giving ne?"..."On cheese

And begin with pitying glames to hear what characteristics with pitying glames to hear what could be some and tree to postry?

The dying relation fattered and he took that "Political Political".

The impossible to describe the publishment of the control of the c

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Summer 20

me troske proposition of a simpandent of a simpandent of a simpandent of invalidation in the transmission of a simpandent of the simpanden

ny Corn accounce The boys don't say "Dry up" for slang. "Flug up your phonograph" is

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THE TELEPHONE.

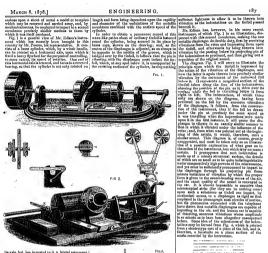
THE PHONOGRAFI.

It is proposal, and may be winted within the proposal in the control of the con

have been suggested by the action of that instru-Ting two instructeds differ very materially in principles and altogether in purpose. The totephone is constabilly a citypraphic intravensive by which is constabilly a citypraphic intravensive by which constability is designed by the purpose of the a distance and reproduced by the purpose of the city. They phosphage his a purpose mechanical theory is a proposed by the purpose of the city two jets of the citypraphic and the citypraphic proposed points provided and the citypraphic proposed and the production of the citypraphic proposed and the citypraphic as a temple for reproduction and the citypraphic proposed and the processing states. Both intravenses are, with which their different objects are living when the citypraphic proposed and the citypraphic proposed down.

below, consciously for the extreme shealings below. Considering for the extreme through a below. The construction of the const

ENGINEERING.



its axis, but has incarted to it a interal movement from end to end when the winch is related, 'Around the circumference of the cylinder is turned a piral groove, the pitch of which is the same as that of the serve on the horizontal shaft, so that it is incal

MARCH 8, 1878.1



the demonstrate of the special and the contract points of the length and the contract points of the length is used for each of the length is used for each of the length is used for the length is used for the length is used for the length is used for the length is used for the length is used for the length is used for the length is used for the length is used for the length is used to the length in the length is used for the length is used to the length in the length is used to the length in the length is used to the length in the length is used to the length in the length is used to the length in the length in the length is used to the length in the length in the length in the length is used to the length in the length i

TEA-TABLE TALKS.

ABOUT AMUSEMENTS, AND SOME The Telephone as an Artist-The Baby

The STATEMENT OF THE AMERICAN CONTROL OF THE AMERICAN

to try to think estimly about it even for a mo-ment.

Talk about your biby, smothered in finnels, and spring-jets and things, with its infinite possibilities, that's to be future President, and all that.

Medam, that oberub of your len's a circ nos to this baby monograph, swaddled in

and the second service of the second second service of the second second service of the second seco in the seventies, or eighties

This baby monograph, that talks the first da of its existence, will talk so long afterward that it would make oil Methypeigh blush at hi youth.
Which quality, if no other, especially, on

mends it to the feminine, if mends it to the feminine, if not to the mater-nal, heart!
It I wanted to invest in an eary, comforta-ble, dead-size of immeriality—speaking after the shanner of men, I'll he a monograph.
I merer think may more than is absolutely necessary—for productail reason. But when I try to think about the menograph, it fairly

try to tollie moon the monograpo, it rains mocks me down. We can already see how it will soon by giv-

ing us the best music in the world for a mere song.
How it will soon be rushing it

very cheap.
How it will annihilate the lecture bureau and such like excressences on our civiliantion . beaven be praised.

How it will write our letters and

How it will write our letters and lighter no end of business.

How it will be awkwardly but apportunely proving may liers in court, by bringing them face to face with themisters.

How it will preserve the George Francts Trains, the Ben Busines and the ER Perkitsons to automich and großis generations yet un-

enbook can listen at pleasure or with pain, to the tender words of the lover whom she re-jected swenty years before.

How bustand and wife can put each other

on record, so to speak, from the spoony days of courtble, to the time of the first Caudlel tecture, with all the jetermediate and subsequent variations.

quant variations.

How the sweet sug, or the magnificent periods and glowing eduquence of cratery or the intelligence of the trapellation, can be headed down to enother generation to be those futures folk know what we were his and what with the country of the single of the country of the little darking that is not portly of the little darking that all loss soon gave to live with the countries.

engels.

"Grew the infinite tenderness of mother love, "Gave the unfails tendersens of mather love for a six on and extracted to words, may be a kinn by the son as he leaves the old home. As any large as the same the same that the same and th

already!

Hilling thus superdividly at the illimitable possibilities, of which the unknown quantity is thus for the dominant closurer, reculed with the law had the "Unknown," in taughte form, at the Order Home, while said. we have had the "Unknown," in tangible form, at the Open House this week. It is not half tend. Or, it has not less than sixty points out of a possible bundred, as my friend Disc would put it. Which is a very good arronge for Rechester in the dramated lies. It is nice to be shown to your seat by an inther who wayer selection.

men and Austral Spaces exen It lon que,

It is delightful to have style, in the front of the house, own if the stage carpenters do burgle their business like a parcel of buyes at a red school-bose in a country erosis reads. Take my word for it, style is worth sacrific-

Take my word for it, style is worth sacrific-ing a wast deal for.
Which is precisely what they did at the Opera House last Thursday night.
Mr. John A. Steven, with his Arch Street Theatre Company, has given three perform-ances of the "Unknown,"—the leat at this afa's matines and each time to a large

Which speaks well for his "comantic play."

Which speaks well for his "committe play," and the company which play it.

"As I and before, it is not half bad,
"Tuere is planty of light and shade in it, interminated with a good lifes of artistic effect.
A majority of the situations are good, and some of the tableaux are thoroughly dramath sithough there is nothing strikingly original i sitions, h there is nothing strikingly original in any of them.

The interest centers in the strong man, and

"he inferent centers in the attent must stud-den," bursels of rozaon. Mr. Bierenn bus given much as. "My to his impersonated diagnosis of a brain or "ease," which presents the not pusastural ways. "Is of a mus who feels the weight upon his b-the, strangles against its thrailitou, sind at odd times half exches glumpers of the yeat, scatching at them with a

Elmayer of the yest, natacheg at them with a District defiguration. I strength in the pre-sentation but sensitive one is nated at the pre-sentation but sensitive one is nated at the log-coner, after to his lifted the load from his bright, using his metter's pietres as the lever. There is no doubt the gallery demands it, and of course is in the only thing to American and of course is in the only thing to A. They when they gat he gat would not have the course of the course of the course of the when they gat he gat would not have the course of the course of the course of the when they gat he gat would not have the course of the course of the course of the the course of the course of the course of the the course of the course of the course of the the course of the course of the course of the course of the course of the course of the the course of the course of the course of the the course of the course of the course of the the course of the course of the course of the the course of the course of the course of the the course of the course of the course of the the course of the course of the course of the the course of the course of the the course of the course of the the course of the course of the the course of the course of the the course of the course of the the course of the course of the the course of the course of the the course of the course of the the course of the course of the the course of the course of the the course of the course of the the course of the

want their money, worja and they knew when they get it.

To their credit be it said, they have a k can appreciation of hazesty, and gendaniese, and they have a way possibly their own of ex-pressing approvation whom the villain of the plot is got "dead to rinkip."

Be have a great many other people-when it is only a vitialn on the stage.

I have nothing more to say of this play, un-

less it be to briefly entalogue some of its good Con doub in India—which really doesn't count. One seemstration off Castle Garden.

One possessification of the po One homicide.
A super-coaling of a very mild article of love.
And some other things.
An audience too fastidious to be solted with An audience too restoutes to the test of dist, had better try Hammend.
Noat Count.

PRO-THE PHONOGRAPH

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PRO-THE PHONOGRAPH

STRENGE AND A STREET THE THREAD

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res Ford, Marrie 12, 1678.

Ladies' Day at the telephone oppies.

de receased the telephone Company, in this thingues

define, were crowded with hadies yesterday atterneds

exhibited of Professor Dilaser placements at these

exhibited of Professor Dilaser placements at these

souths, and it bids fair to create a great beauty and illiw ("figuragement", eds) anide ows such an state of the state of bein won out. Asilisidar manie at borses converse at a distance of twenty miles, "politic period para district period period politic period para district period para district period para district period para district period para district period period period period period period period period detailers, so that they will the published attaches, so that they will the published attaches, so that they will the published attaches, and the published period attaches, and the published perio

program we are mounts portuno Concernity

boster eracy rol own year onw nomow atnow excitating off sewery, from all all has solition, all gainfilling and thereath bendenger of year old 70 stolicky seek and represent out to self out all the geon

tinels out to Reitstad of its death Phonograph" oan make no misiake.) topylets, 'The testimony of witnesses in court will only be reported to be taken on monuments and consequence of the pepero seri occord iliw Buthaw condeny then prediced and represident until the crimbly in the hands) and loft for hours, by clock-work and one to carried cons-

S 06 PER YEAR, IN ADVANCE, THREE CENTS PER COPY.

Daily Chronicle?

[Frem Our Special Correspondent.] A WONDERFUL INVESTION

The extrionisprending of the control limgleinten emitted until grasp its post-bilities. The writer-had rand in New York papers of Feb. 22d, in description berdering to much on the unreasonable as to lead to the ballet that it was a lingu and advidity written books. That an in-strument, slople in construction and re-galing very little accommission, could be need to record sind reproduced every until spoken to it and every sound whispered in its month place, mountd absorbt and the residual of the artistical conPATH MADRIANTS

APPLICATION OF THE PATH OF

director of the o my, now re-blent in this only, had rearmy, now re-dent in this offer, final re-peared a conflict invitation to intend a public exhibition of the "Phonograph" of Ror. Dr. Armings's church, and stealin-ing, had induced his wife to strond. She did to, and was to exchanged with the performance that her hadral, quis per-sunded to clint this factory of the inventor. commony with your currespondent, last

Saluriday.

Armed with the proper crodesulate of introduction we found Prof. Edison "at house," at the feeter, as he nemally determined by luxury is his or anasough surrounded by luxury in his spacious manden a gun-shot away, at Menlu Park, N. J., (twenty-four inflet from this city.) he spends more than twothirds of his time aight and day, at work Inhelis of his time inglets and day, at work-with the stunderful inventions he has per-dicionis, neglecting alone, reat-said appe-titue for the one, absorbing paraset) of the secretic of Section 1990. We were kindly re-ceived and found Prof. Edition is young man in young this ago is about thery-comy, with an income of the professional para-tic paragraph of the professional para-tic paragraph of the professional para-tic paragraph of the professional para-tic parameter of the professional para-tic parameter of the professional para compactly formed, and a beaming intelligones of countemnee rundered all the more evident by a slight desfues, which showed all his families alors to eatch the views of those to whom he willingly exbibles the workings of his "Phonograph." hibbs the workings of his "Phonograph."
This mean was formerly an employe of the Western Under Telegraph Georgiany,
Now he receives weakly from the same corporation the sum of \$200 for the use of can of his inventions, the quadruplex and sextuplex disputchers, by which several messages can be sent at the same time over a single wire. He is already the patentee of more than two hundred of his nwn investions, among the most promi-nent of which are the automatic telegraph, the carbon telephone, the electric pen, the stock indicator, the marvellous pho-nograph, the electro-motograph (by which telegraphing is done without circowater to ographing is some without oleo-tricity.) and a wonderful instrument called the airophone, not yet perfected. The factory is a lateratory in which elec-trical instruments and hundreds of hottles of chemicals line shelves and floors. Tgiegraph wires lend direct to the building, and here with a half-degen experts, thi and been with a nation conducts his experi-iments, day and night, catching a bris-half-hour's sleep at intervals when mater lastes that she must not be continue neglected. His talk is the talk of comme sonse, and he wastes no words as he pre-

"Ordering the ongine stated (the ma-letic talks more regularly by steps than the problem of the more regularly by steps than a mostle-piece of gutta percine, a sort, sort pracking tabe. Providing the time under a bollow-tensi cylinder urdenn was believe tension to be been sort of the sort bear of the soft of the sort problem of the sort talks, sort The cylinder, the cylinder talks, sort The cylinder, do best four revolves. The cylinder, (about four inches in diameter and lifteen inches bog,) is grooved spirally. The monthpieco is an artificial displanges with a thin disc of motal at the bestern, having in its centre a fine steel point. When the In its centre a fine steel point. "When the talking commences the disc vibrates, the steel point punctures the tin-foil and the report commences. Were the the-foil may regard commenced with delta (as in the specimen herein unclosed.): This is the specimen herein unclosed.): This is the specimen herein enclosed.) This is the matrix. Now for the most remarkable part of the exhibition. The mouth-piece is replaced at the left of the epileder, (as at the construences), I the operator the construences.) places a tin tunnel against the mounts piece, with the large end outward, presses it again against the matrix covering the

cylinder-and out of the tunnel comes

ATTOM THE PROVOGRAPH.

THE PROPERTY OF THE PROVOGRAPH.

THE PROPERTY OF THE PR LADERS DAY AT THE TREEFHONE OFFICE.

TOUTE Of the Telephone Company in The Treefing, were crowded with Indica restorday afternor Inhibitat, were coveded with indice preioristy allermost. Vide exhibition of Professees Distance plensierspalls at the records he interface plensierspalls at the records he interface which have plensy controlled to the control of the control of the controlled to investigate were have y design controlled to the contro



MARCH 30, 1878.1

Scientific American.

clearer that showed the least premise of accomises. The yield itself: before the tinfell could be impressed deeply acres of the

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ero nescription can impart any reasty interp reformances. Fully familiar as we are and have been with the machine since its incep-tion, it is still impossible for us to listen to it without a feeling of astunishment and a well defined doubt that our senses are not do-

ceiring us. The extreme simplicity of the contrivance enhances this notion. There is nothing in the half articulated manotoness of the complicated Faher appearates to excite surprise, because, although filogically, the hearer half expects that such an assemblage of in-tricate mechanism will produce more startfing results than it does; but here is really nothing lest a revolving cylinder covered with a sheet of tinfoll, and a speaking tube; no levers, no springs, no keyboards, no artificial lips or larynx, no bellows. If we lived in 1018 instead of 1878 the life of Mr. Edison would not be worth a moment's purchase; in fact, he would have been resedred into carbonic acid, hydrogen, and his other consti-tuent gases long ago in the thouse set sport for curthly communers with his saturic rea-

If accurate and elearly enunchited ropetition of the sounds made in it is the ultima These of the phonograph's capabilities, then it has sirendy attained that point. Where it is open to improvement, and to this the attention of he inventor is now being devoted, is in angaccating the intensity of the sound. In form is substantially the same as when it was

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therefore, that showed planted promise of newtonesses. The yould litter! is store the finfolic could be impressed to represent the store of the finding of the property of the could be appropriate to the could be appropriated by

As it is pecually related on the Address paramograpes one me Congression on resourt on which on other same ouring rogs, mear hant of the description can import any really integrate idea of its annial his last astembhing proposal is that he shall construct a degree of his

THE PHONOGRAPH.

INVENTOR EDISON'S LAST World Spierry 2 6 A WONDERFUL MACHINE THAT WILL BE OF IMMENSE VALUE FOR

VARIOUS PURPOSES. PROMISING THAT IT SHALL HEFER WORDS

WHICH "MAY BE HEARD DISTINCTLY FOUR MILES AWAY."

"In very sery," said Mr. Miseu, the investor of many north lan seven wereden, to a Women reporter who called a seven wereden, to a Women reporter who called a seven wereden, to a Women reporter who called the seven the seven to be day; "that I cannot show you take not propose to day; I have just sent of proposedies for a notice to Westerlegist, and have taken the resealed I find have the contract of the seven the resealed I find have the contract of the seven the research of the seven the research of the seven the research of the seven the research of the seven the research of the seven the seven the research of the seven the se

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realization and of the popular designs or once pur-posed person your particular than shoot-ple. "And Altr. Moltra as the reporter insent or all the property of the property insent or institute models inter as a consequence of the nature in which they were mandage." It is I wanted to the property of the property of the property of the manufacture of the property of the property of the manufacture of the property of the proper

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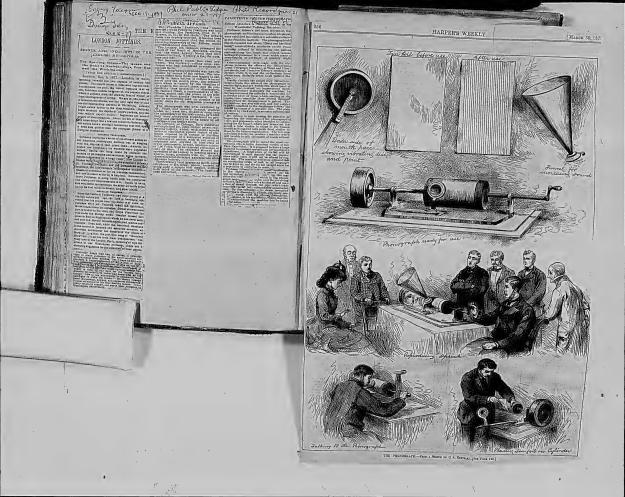
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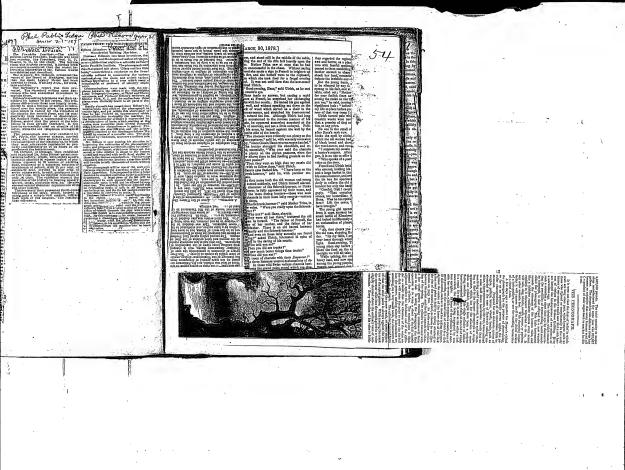
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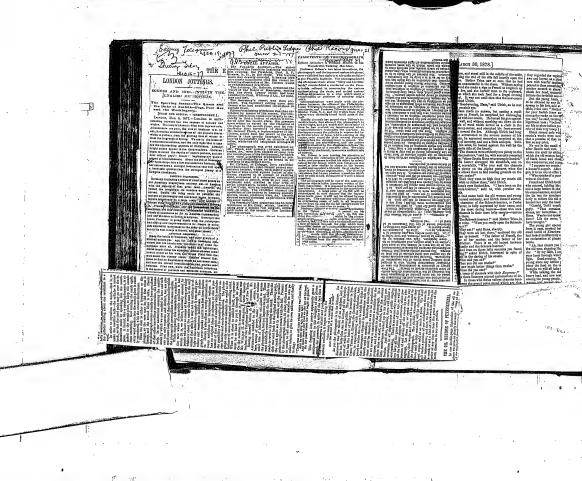
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THE TELEPHONE A SENSITIVE ELECTROSCOPE, The law first discovered by Farnday more than 40 years igo, that intermittent electric currents will induce other curents in neighboring conductors, was applied to advantage in various forms of small machines with double and triole colls, mostly used for medical purposes, and culminated in that powerful modern apparatus now found in most all physical cabinets, the Ruhmkorff coll.

The experiments proving that such currents are also con erated when the wires are not close together are well knownto electricians. But when the wires are several feet distant It requires delicate gaivanometers or other electroscopic ap-pliances to demonstrate their presence.

As the telephone is an instrument adapted to be arted upon

by very weak electric currents; and to manifest their audible officers, it may be authorized that it is very well adapted to test the presence of currents incidentally induced by other currents passing through neighboring wires, and the obser-vation of such phenomena has caused the most intense survation of such phenomena has caused the most intenso sur-prise among those sat sequented with the law of electric in-duction, making them wonder how the current passes from one wire to another through keveral feet of intervening air. From the first time the telephone was used many strange counda were heard, which often interfered with the successful use. of the instrument, especially when the return currents went through the ground; but even while using two wires extranothrough the greated; in our on white using two witces extracted on the control of the sound was also distinctly heard through a-telephone in mother locality (Manuel's store), which had no other connec-tion with the Western Union wire than that. The wire conneed what the western ofnen were than that, "Indewere con-neeting it with Huffalo ran parallel and near to the Western Union wire, but nowhere touched it. It is further reported that a similar state of things took place during the concert, when the cornet sole and singing in Buffalo were also heard in a third telephone in Amadon's office, the wire of which at o point approached nearer to the Western Union wire than a distance of ten feet.

It had before been noticed that sounds were heard in Ams-It had before been noticed that sounds were heard in Ama-idea's office when the telephones of the Vacuum Oil Com-pany were used, the wires of which, were parallel, but did not approach each other at any poles with several feet. The Rochester editor adds: "This we regard as one of the The Rochester editor adds: "This we regard as one of the most wonderful developments yet of this mysterious force of etectricity, but perhaps the electricians will he allo to give some explanation of the fact, which is well attested."

It will be seen from what we add in the heptaming of this It will be seen from what we saled in the neglianing of this satisfic that not only is here an explication, but that it is founded on one of the best known and scalabilistic disaws of scientisticy, and creat he whole phenomenon was antici-pated; however, it must be confessed that no one did antici-pated to the perfection of detail as practical experiences shows he attainable, and it awayes the telephone to be proof of the paie such a perfection or certain as practical experience shows to be attainable, and it proves the telephone to be one of the most sensitive electroscopes for detecting the presence of inTHE DAILY GRAPHIC: NEW Y

TERMS OF THE GRAPHIC. tilly Orderene is positioned at Twelve ock, and at Pour o'Clock every aftern P SUISCEIPTON (PAYABLE IN AUTAMOS). July 1 weeks

of THE PARTY CHAPTED WIll be sent by

THESE TO CITY STRUCTURES.

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The structure of the s THE GRAPHIC COMPANT, NEW YORK CITY.

BRECK OFFICES OF THE OKAPHIC

DATE CHAPTED THURSDAY, MAROH 21, 1878.

RETARY SHERMAN ON RESUMPTION WHETARY SHERMAN ON RESULPTION. In realloup televices Secretary Sherman and Strate Plantec Guardine day before years, but the secretary ones, opposed any repeal of the Bentry country opposed any repeal of the Bentry country opposed any repeal of the Bentry country opposed any repeal of the Bentry country opposed any repeal of the Bentry country opposed any repeal of the Bentry country on the secretary opposed and the bentry of the Bentry opposed and the secretary opposed and the secretary opposed and the peace was good and on.

as Newdy Jan. Secondly to the elements of related Bathes as gold and as Newdy Jan. Secondly to the elements of relate Baternas, there were in the United Data Pressaries to cold an idea on an abullation of the Company

raids which might threaten the success of the rerains which implict threaton the success of the in-sumption selection. And it is worthy of remark that boot raids of this kind by speculister mitels the boot raids of this kind by speculister mitels of the tray disastence effect upon the attempt to the support of the state of the state of the state of the support of the state of the state of that the restrict hand, there saids, as Fret's best Thouse or to fail. "sould not be attempted, because are to fail."

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THE DAILY GRAPHIC



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VOL. XVI.

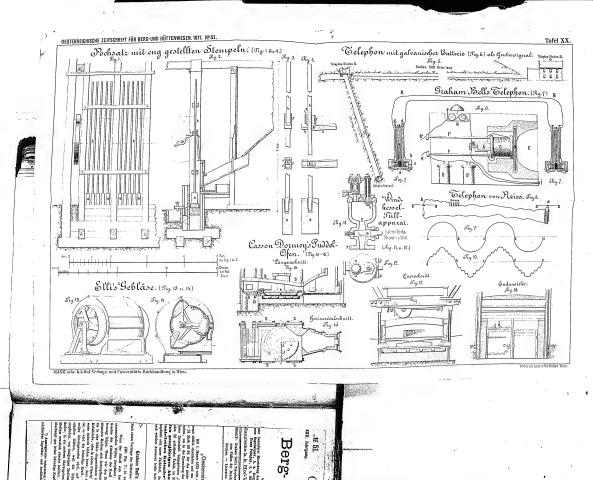
All the News.

NEW YORK, THURSDAY, MARCH 21, 1878.

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Oesterreichische Zeitschrift

Berg- und Hüttenwesen.

Verantwertlicher Redacteur;

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HALT: Graham Bell's Telephon. — Reinonstiton über die Erzausbereitung in Dontschland. (Schloss.) — Ellie' Gebläss. — Apparat num Fullen der Druckwindkonsel mit Luft, Patent Richn, Meinicke und Wolf, - Mittheilungen aus den Vereinen. -Notizen. - Literatur. - Anktudigungen.

Abonnement

"Oesterreichische Zeitschrift für Berg- und Hüttenwesen".

Mit 1. Jänner 1878 tritt dieses Blatt in seinen XXVI. Jahrgang. Wie erlanben uns zur Prilmumeration auf denselber femit köflich einsufischen und um gefällige rechtreitige Einseidung des Prünumerations-Betrages von 10 s. 50 kz. 5. W. = 21 Mark 50 Pf. für das Halbjahr mittelst Postanweisung zu er. m, um in der Zusendung des Blattes keine Unterbreckung eintreien Inssen zu missen. — Obechen für die bis zum Jahre 1873 oser Zeitsehrift beigogobenen "Erfahrungen" durch die Textvermehrung und die zahlreichen artistischen Beigaben, im Vorahre 20 artistische Tafele, im Blatte selbst entsprechender Ersatz geboten wird, erhniten Abonnenten, welche ien ganzjährigen Abonnementsbetrag einsenden, im Herbst 1878 Fromme's "Monanistischen Kalender" für das Jahr 1879 als Gratisprämie zugestellt. — Zu laterien mpfiehlt sich unser Fachblatt, da es im In- und Anslande die welteste Verbreitung geniesst, als das gerignetste. — Schemas ich welchen Annenren leicht berechnet werden können, stehen auf gef. Verlangen gratis zu Dieneten.

Graham Bell's Telephon. ich einem Vortrage des Hofrathus Brunner v. Wattenwyl.")

(Mit Fig. 7-10 auf Tafel XX.)

Wenn der Schall sich frei von einem Punkte aus ir strischen Wellen fortpflauzt, so wird er dem allgemeinen Gossine der Abnahme der Kruft mit dem Quadrate der Entforming folgen. Weun wir den Schall gwingen, in einem bemten Medium eich fortzupfianzon, z. B. in einer Luftslinde. die in eine Röhre eingeschlossen ist, oder in einem massiven Metalistabe, oder in olozus Fitzzig' 'tastabe, den man beispiele weise dadurek bilden kann, dass man einen Bindfaden besouchtet, so wird die lebendige Kraft, welche in Ferm von Schallwellen hinoingowerfon wird, auf eine grössere Distanz darin erhalten böeiben, well die Schaliwellen einen Widerstand empfinden, von demjonigen Medium, in dem ale sich eben be-finden, in ein underes überzugehen. Künnten wir ein solches Modium acustisch absolut isolicen, das beiset verhindern, dass Sherhaupt gar keine lebendige Kraft an das umgebende Medium

') Auszogsweise entnemmen der Worbensthrift des la schen Ingenieur- und Architekten-Vereines.

tibergeht, so wirde der Schall so gut wie die Elektricität au

unendlicke Entferning fortgopilanat worden. Da nun der Schall in Schwingungen der Materie besteht und jeder Körper dem Impalte mehr oder weniger leicht folgen wird, so bestunde das cinzige Mittel, die Verinste des Schalles unterprega zu verhindern, darin, dass wir das leitende Medium mit absolut leerem Raume umgeben. Dies ist unmöglich, und sonneh ist überhaupt gar keine Hoffeung vorhanden, den Schall vollständig zu isoliren. Könnten wir aber die lebendige Kraft, die den Schall erzeugt, in Acthor-Schwingungen umwandeln, so ware die Hoffnung vorhanden, die letzteren auf grosse Distanzen fortzapdanzen, da man sie zu isoliren im Stande ist, Als Beispiel erwähne ich den Telegraphendraht, in welchem die Aethorschwingungen, die man Elektricität nennt, vellkemmen isolist, d. b. versniasst sind, nur in diesem einen Drabt un bleiben. Besissen wir dann das zweite Mittel, diese Aothernehwingungen am anderen Ende des Fortpflanzungs-Mediums wieder in Molecular-Schwingungen zurückzuverwandeln, so hutten wir den Schall vermöge dieser zweimaligen Umgetunge auf eine greeze Distanz forigepfianzt, Dieses ist die Grundidee, welche dem Telephon

Graham Bell an Grande liest.

Fordow Duty Selegraph

HALP-A-CENTURY ago Sir John Herschell,

Something ought to be done to Mr. Konson, and there is a growing conviction that it had better he done with a home rope. Mr. EDINON, has invented too many things, and almost without exception they are things of the most deleterious character. He has been addicted to electricity for many

nure conspionens peak of scientific infamy by inventing the norophone-an instrument for more devastating in its effects and fraught with the destruction of human soci-

sand acrophones. Far better is it to in recitable than to possess all the lamines of origination at the street hearing every remork that is made with in a radius of four miles. It may be too late to suppress the nerophese new, but at least there is time to visit upon the "his fellow-countrymen. My Sums mai 25

sinterest and generates that have supermany and the condens to the content of t so that at any future time it can be brought |

tion. He may that an accordant inva-tion. He mays that an accordance can be at-tucked to a locamotive, and that with its paid the tengineer, can request persons to the lock out for the becomptive. Who are many

ing abadiway ordering fore miles distant from the train. He shap boards that he will attach an acrophene to the gigantic states of "Liberty," which France is to present to this country, provided we will raise mency seneugh to pay for it, and that the status rill thus be able to welcome incoming ves-

will thusbe able to welcome brooming verification in the comment of a less in the Lawor Bay, and to warm than a rice to come up to the City in case Mr. Stayters, Matrices, is delivering an oration on the fluorency, or Mr. Cox is making a construction of the currency, or Mr. Cox is making a construction of the currency, or Mr. Cox is making a construction of the currency of Mr. Cox is making a construction of the currency of Mr. Cox is making a construction of the currency of Mr. Cox is making a construction of the currency of Mr. Cox is making a construction of the currency of Mr. Cox is making a construction of the currency of Mr. Cox is making a construction of the currency of Mr. Cox is making a construction of the currency of the curren

it might prove a companatively mobjection, able justrument; but no man can loss of whirlward and guarantee that its ravages shall be conduct to Chicago, or to some

s not a concealed phonograph remores-less gathering up his remarks and ready to reproduce them at some future date, his family, to express any but most innocunur and coloriess views f and what woman when calling on a female friend, and walt-ing for the latter to make her appearance in the drawing-room, will dore to express heropinion of the wretched taste displayed

in the furniture, or the bideous appearance of the family photographs? In the days of nersecution and espionago it was sald. though with postless exaggeration, that the walls had care. Thunks to Mr. Epison's percented ingenuity, this has not only beene a literal truth, but avery shelf, closet. or floor may now have its [concraind phone emphis ages. No young man will yenture to carry on a private conversation with a vounz lady, lest he should be filling a secret nograph with evidence that, in a breach of promise suit, would secure an immediate verdict against him, and our very small-boys will fear to express themselves with childish freedom, lest the phonograph should report them as having lightly used the name of "gosh," or as having threatened to "bust the smoot" of the long-suffering governoss. The phonograph was, at the time of its in-rention, the most terrible example of de-pented ingenuity which the world had seen; but Mr. Enusor has since reached a still

tion of the phonograph. In fact, it is a phon ograph which converts whispers into rears. If, for example, you mention, within bearing of the accophone, that you regard Mr. HAYES us the greatest and best man that America has yet produced, that atroclous in-trantest may overwhelm you with shame by repeating your remark in a tone that can

beard no less than four miles. Mr. Epi-i, with characteristic effrontery, repre-ts this as a useful and beneficent inven-

with an entire to the contract of

years, and it is not very long ago that he became neterious for inving discovered a new force, though he has since kept it care-

fully concealed, either upon his person or elsewhere. Resently he invented the phone-

graph, a machine that catches the lightest

out, to the confusion of the original speaker, This inschine will oventually destroy all

disper of conversation and stores it up,

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render more dangerous than over woman's want of confidence in woman. No man can feel sure that wherever he may be there

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Payrage One Beeth, Thirty Orace one year W. M. SINGERLY, Preside

Philadelphia, Tucaday, Feb. 10, 1818

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PUBLISHED EVERY MORNING (RECEPT SUNDAY)

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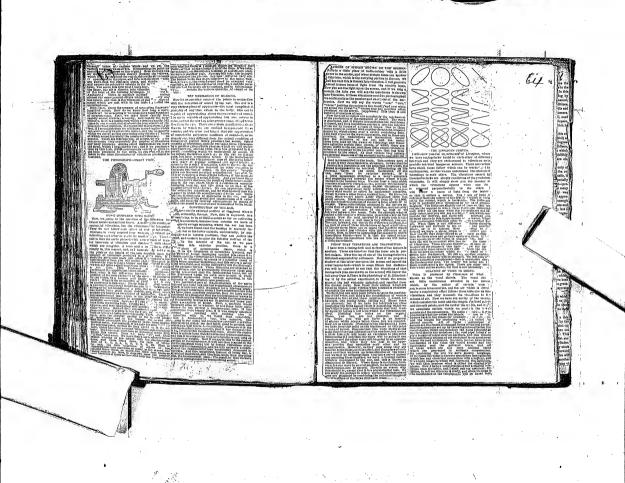
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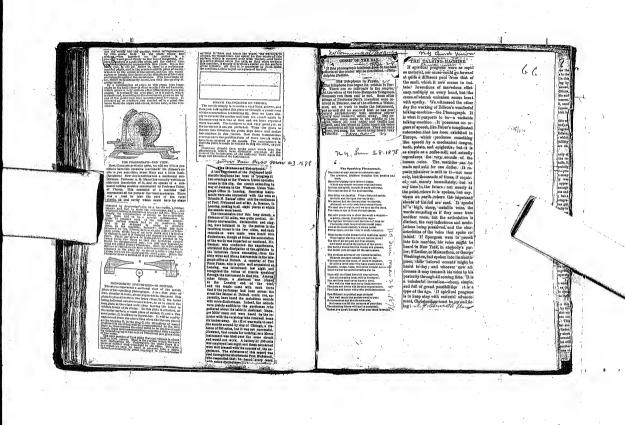
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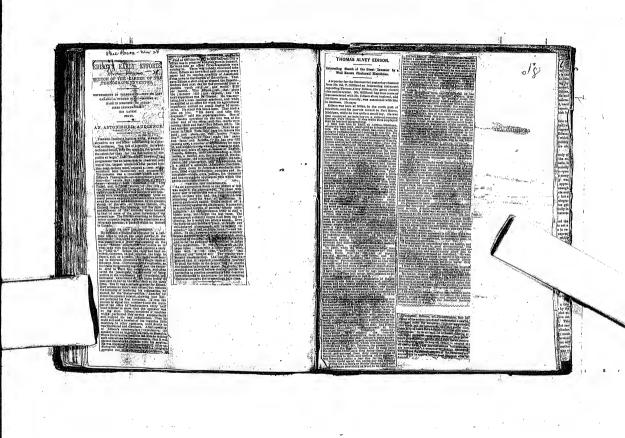
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[We saturate he following most interesting account of this wonderful new, invention from the columns of the Train

Nor many weeks have passed since we were startled by the ann uncoment that we could converse studiely with each other, although hamirons of pilles apart, by means of so many miles

of wire with a little electro magnet at each end, yet we are on the unint of well-sing some of the more advantages according by the telephone. Another wonder is now promised us- an invention, purely mechanical in its nature, by means of which words spoken by the human voice can be, so to speak, stored up and reproduced at will over and over again, hundreds, it may be thousands, of times. What will be thought of a view of suchanism by means of which a message of any length can be spoken on to a plate of metal, that plate sent by post to any. part of the world, and the message absolutely re-spoken in the very voice of the sender purely by mechanical agency? What, too, shall be said of a mere machine, by means of which the old familiar voice of eggs who is no longer with us on earth can be heard speaking to us, in the very tones and measure to which our cars were unes accordenced ?

The highly ingenious apparatus by which this wonder is effected is the invention of Mr. Thomas A. Edison, of Mandon e Park, New Jersey, U.S.A., the electrical mixings to the Western Union Telegraph Company. Mr. Edgeon is well known in the States, and sourcely less so in England, for several valuable. omatical applications of obstrical science, among Mr. Edison's other inventions being an exceedingly well arranged telephone. To the present invention Mr. Edison's Edison's the manu of the tonograph, and it depends for its action unon e-

The Phonograph is composed of three parts nating thems a receiving, a recording, and a transmitting apparatus. scoiving apparatus consists of a curved tube, see end of which is fitted with a monthplere for the convertises of speaking into it. The other end is about two inches in disnuter, and is closed in with a disc or disphragm of exceedingly thin metal, chouch in with a dinc or displarage of executingly thin metal, capable of being thrus slightly estranta, or within the tube. To the control of the pressure being applied to it from within the tube. To the courte of this displarage, which towns a right angle with the phorizon—is fixed a small blunt steel pin, which, of scores, paratakes of the vibratory motion of the displacem. This arrange-ment is carried on a table and is fitted with a set screw, by mens is earried on a cause and is access with a secondary, my means of which it can be adjusted relatively to the second just means of wasen it can be adjusted reactively to the second part of the apparatus—the recorder. This is a brass cylinder, about four inches in length and four inches in diameter, cut with a continnous V groove from one end to the other, so that it in effect finnous V groover from one cut to the other, so that it in effect represents in large screw. Measuring along this cytical from one cut to the other there are 16 of these genera to the lash, or about 40 in the whole length. The total length of this contin-tions groove, or server-thread, is about 40 fact—that is to key, the standard of the land of the land of the last to the last to the last the land of the same of the last last to last. about for in two waves or regans. In contract of four-think is to say, that would not be a superior of it were stricted out in a straight lime. This cylinder power if it were straight close it is straight lime. This cylinder power is the very an observation of the straight lime. This cylinder has been point of the receiving the straight lime in the straight lime is the straight lime in the straight lime in the straight lime is the straight lime in the straight lime in the straight lime is the straight lime in the straight lime in the straight lime is the straight lime and out of the straight lime is the straight lime in the straight lime is the straight lime in the straight lime is the straight lime in the straight lime is the straight lime in the straight lime is the straight lime in the straight lime is the straight lime in the straight lime in the straight lime is the straight lime in the straight lime in the straight lime is the straight lime in the straight lime in the straight lime is the straight lime in the straight lime in the straight lime is the straight lime in the straight lime in the straight lime is the straight lime in the straigh

We now see the 'If the pointer be set in the We now see the '.' I the pointer be not in the groove in the cylinder at its ammencement and the handle turned, the groove result 's traversed over the point from leginainty to only or, conversely, the point would always be presented to the groove. A vine speaking in the pressure would produce warran

of sound which would cause the point is enter to greater or less deaths into this groovs, according to the degree of intensity given to the pressure upon the disphragm set up by the vibra-tions of the sound produced. This, of course, of itself weekl mean nothing ; but in order to "rest and preserve these soundmean nothing; our in order or "year and preserves ince boing-pressures, a sheet of tim-fell 16" interposed, the foll being in-elastic and well adapted for receiving, the pressions. This sheet is placed around the cylinder and its edges lightly featured to-sether by mouth-gime, forming an undless board, and hold on the cylinder at the edges by the india-robber rings. . If a person now speaks into the receiving tube and the handle of the cylinder be turned, it will be seen that the vibrations of the cointer will be impressed upon that portion of the tin-foil over the hol

low errows and retained by it. These impressions will be more or less deeply marked according to the modulations and in-flexions of the speaker's voice. We have now a message verbally imprinted upon a strip of metal. Sound has, in fact, been converted into visible form, and we have now to translate that message by reconverting it into sound. We are about, in effect to hear our own voice speaking from a machine the words which have just fallen from our lips. To do this we require the third portion of Mr. Edison's apparatus—the transmitter.

This comists of what may be called a conical metal drum having its larger and open, the smaller and, which is about 2 in.
in diameter, being covered with paper, which is stretched that
as is the parchment of a dram-head. Just in front of this paper as we parented of a dram-nead. Since in rout of this paper disphragm is a light, flat ated spring, held in a vertical position, and terminating in a blink-steel point projecting from it, and corresponding with that on the disphragm of the receiver. The spring is connected with the paper displaragm of the transu by means of a silken thread, which is ... yed just sufficiently in tension to cause the eater face of the disalarages to assume a slightly convex form. This apparatus is placed on the opposite side of the evilence to the receiver. Having not the intersing of the symmetric like recover, many laving let us after apparatus bette from the sylinder, and laving; 19 turning the handle in a reverse direction, not the cylinder best to what we may term the zero point, the transmitting apparatus is advanced towards the cylinder by means of a set serse until the steel point routs without absolute pressure in the first indontation made by the point of the receiver. If now the handle by turned at the same speed as it was when the message was being recorded, the steel point will follow the line of impression, and will vibrate in periods corresponding to the impressions proviously produced on the foil by the point of the receiving arounders. Vibration of the requisite number and death being thus communicated to the paper displanges, there will be pro-duced precisely the same sounds that in the first instance were to produce the impressions formed on the tin-foil. Thus the words of the speaker will be heard issuing from the That the words or no specier will be next beong from the conical drum in his own voice, tinged, however, with a slight metallic or mechanical tone. If the crimiler be revelved more slowly than when the message was being recorded, the voice assumes a hast tone; if more quickly, the message is given with a childish trable. These variations occur according as the vibrations are more or less frequent.

Such is the apparatus, and it promises to be one of the most remarkable of the recent marvels of science. The machine we have described is the first Mr. Edison has reade, but he is preructing one to be set in motion by clockwork, the cylinder being 16 inches long. In the present anchine, for recording a long to menos song. In one present inscense, for rectaming a long message, as soon as one strip of the tin-foll is filled, it is removed and replaced by others until the communication has been completed. In using the machine for the purpose of cornce the metal strips are removed from the cylinder and responses the mean strips are removal from the symmer and sent to the person with whom the speaker desires to correspond, and who must present a machine similar to that used by the studer. The person receiving the strips places them in turn on the cylinder of his apparatus, applies the transmitter, and puts the cylinder in motion, when he hears his friend's voice speak ing to him from the indented metal. And he can repeat the contents of the missive as often as he pleases until he has trorn the metal through. The sender can make an indefinite number the mean through. I no stower can make an amount of manner of opics of his communication by laking, a paster-of-Taris cast of the original strip, and rubbing off impressions from it on a clean short of foil. It will thin be need, as we stated at the in short of ton. It was then no occur, as we assect as one mentionment of this article, that the voices of those who have loft us, either for ever or for a senson only, can be heard talking

not my center or ever or nor assessed every, the or stone centers with us if we so desire it.

The invention has been so recently and so quickly developed. The invention has been so recently and so quickly developed into critistics by Mr. Edition, that he himself can hardly say what its practical value is or will grow the. Nemerous appli-cations suggest themselves, but beyond from to which we have alluded, it is difficult to say with precision how they would amount, it is numerat to say with precision now very wound work out in practice. In cases of depositions it might be of the highest importance to have oral evidence mechanically reproduced in a court of justice. Authors, too, may perhaps be saved the trouble of writing their compositions.

Baculigne news am 111575

Edison's Acrophone. Editor's Acrophone.
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attention, and the sea survey. A still had a distantion, and the sea survey. A still had been survey as the posterior soluted the survey of th

four miles off.
This suggests something really valuable, and
Efficen is evidently the man to work it out. The
phonograph, then, is at prevent, a more curiosity,
and certainly it is one which has required for its
production the rarest sent of genius, and partience.
Mr. Editson will please harry up the zerophone,
Mr. Editson will please harry up the zerophone.

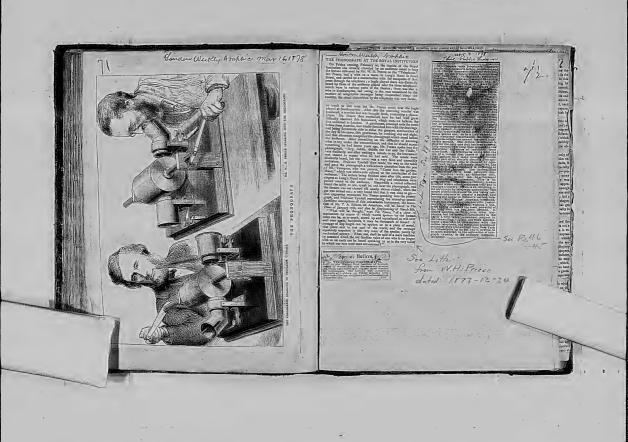
Mr. Maleson worgers upon the great deep

Matur mar 19 08 HELMHOLTES VOWEL THEORY AND THE

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VOL. XVI. All the News.

NEW YORK, TUESDAY, APRIL 2, 1878.

NO. 1570.

THE PAPA OF THE PHONOGRAPH.

ARTERNOON WITH EDISON, INVENTOR OF THE TALKING MACHINES.

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A VISIT TO THE INVENTOR OF THE PHONOGRAPH.

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Automatic Phonography. 76

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THE DAILY GRAPHIC

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of a class of spire and detectives whose fortune

suppress vice, but supperss those who do not receme down" to the information. As yet we are safe, but the present system needs exerful watching lest it should become the nursing mother of a class of rotten detectives.

A HOF TUL FUTURE.

ary Sherman is cridently honestly of the low.

The control planes of the control planes of the control planes of the control planes of the control planes of the control planes of the control planes of the control of th himself confronted wi cepting a Catholic Cabi self into the arms of heart wishes to sholish public. There is not m decision would be. Bu the Pope will approve it the response to the confronter. though the chances are The nation receives y rebuke of Mr. Moutgos the gentleman who is a as a brother of Frank F

There is one reassuring fact, however, which business men would do well to keep in mind

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Automatic Phonography. Telegraphy, or writing at a distance, requires the sterrestion of men in every detail, the same as is the case with phonography, or writing by sounds. In this

anbject of "Hell" were reported in the newspaper On the other hand, if the reporter is a man of call tend understands the subject he is reporting, he may and understants the success as a contract, which improve upon the speaker, round his sentences, which im the excitoment of extempore speech may have been the grate expressed semewhat crudely. We have been the grate of the sentences and the sentences are the sentences and the sentences are the sentences and the sentences are the senten iful recipients of the latter favors, but also desper jufferers of the former.

What is wanted, therefore, is an instrument will will give an truthful a record of what is said an this photographic camera gives a record of what is and and it is to the credit of Mr. Thomas H. Edison to begin

The essential principle of this instrument is etallic receibranc, which is put into vibration by the rules; in the middle of this membrane is a point all torbed, which reaches half way down in a groove cat. over a motalite plate, carefully avoiding contact. Tale grouve may be a spiral cut upon a retating, flat surface, or a screw-line around a revolving brase cylinder.
On this greeve a piece of tinfell is laid, closely stack to the surface. When now the tinfell is moved forwar by the rotation of the disk or cylinder, the point will make a depression in the same, which is like another amouth shallow groove; but when the membrane

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TIDE DATES GRAPHIC

THESDAY, APRIL 9, 1878

CHTARS correspondence, with absolute of important constrained and substitute extent, and also photographs of nataresting adolesies, are notified from all parts of the world. If such they will be liberally said for. The stocky touce and odders sectored as error correspondence, not for publication, but me a private greeken, see of one of the publication, but me a private greeken, see of one of the publication.

ADDITION THAT THE TROPS AND TO SHARE THE ADDITION THE ADDITION OF THE ADDITION DOING EVIL THAT GOOD MAY COME.

of a class of sides and detectives whose fortuna of a class of spice and detectives whose corrupt and farms would depend upon their success in on-trappling the members of society into the com-mission of crime would threaten the very exis-tance of society. The detective has a termendous ure of society. The detective has a termendous advantage over any private individual. He has the sympathies of society on his able, the sympathies of society on his able, and has notives are taken are condended so long as his motives are taken in his case out of ten. If, on the other hand, we look at the history of the detective early the history of the detective early left his city we see how little describe service in this city we see how little describe. detectives have been of any credit. The whole detectives have been of any credit. The whole detective surfree has been cotten, and there is hardly a question that if the frush were known as the constraint of the companion in most cases, Just, look at the ballong the cervice in Washington. Has there been a man that his used detectives in recent years that has not been rainfeched, and the most threatening circumstances now connected with Secretary Scharz-commutances now connected with Secretary Scharz-commutances now connected with Secretary Scharz-

cumulances now connected with Secretary Schure in that he is such good of the describer who have been been been such as the su

A HOL THE ENTHRY

Becretary Sherman is cridently bonestly of the Becretary Shermann is cridently boneatly of the option that we can resume specie payments by the first of January, with \$100,000,000 gold and all the same of the

that the search of generated and the search of the search

There is one reassuring fact, however, which

business men would do well to keen inin

belis and devisers to p pockets of a faw greed; stand well with the Sur the Municipal Sorte ter, but let not there. It must be puisance or abated until the arbitrary po catners is so shorn tha that the sharks of the i devour the aubstance ! and advention of his an

NEW ATTITUDE OF A wide field of specularies passe from Roam scalous Catholics in I taking any part in elections George of the Section 1 taking any part in elections George of the section to the form on to to recognize the validations electron to the Logarithms of the Logarithms and the Logarithms of the Logarithms of the Logarithms of the Logarithms of the Logarithms of Logarithms of Parisia reported that it is lies to parisicipate A wide field of sporu scept scats in I usual oaths to the King but pledging themsel-the laws of the Church

prove of this decision, the faithful in Italy to a low. Suffrage in Ital there are only about 705, tion of 27,000,000. The most thoroughly organi nor is it doubtful that it tive instincts, and, i calture of the country Church. The cry of because she stood in II Italy is no more heard on Italian is to-day as union is worth what it the past; the present a interesting. If the Chi-to work in the political no one to see a Parilan sibly a majority, cortat the members were neal; be arrayed against the publicans and the ista. But no symi-lates three parties; together, while the Cat-larmonious. King It-humself conferented wi-cepting a Catholic Cat-tel finite the arms of heart wishes to sholled rabile. There is not m. sibly a majority, ceru

public. There is not m decision would be. Bu the Pope will approve t though the chances or The nation receives t The nation receives the gentleman who is a as a brother of Frank F statemen, and the structure of the gentleman shall be structured by the bis pai unpatrictic and apathet by compelled to resert a seather to the statement of the THE RINGRAPHICAL SKETCH OF EDISON BY GEORGE BLISS BEGINS ON PAGE 101. CONTINUES ON PAGE 77 AND CONCLUDES ON PAGE 76.1

desired, morre cassis supplication till, a sentit in breached or an impossibility spower, the breached or an impossibility spower, the faces a created, "needs of speed days experienced," properly witnessed, and has subsection requires or each statistics. Sign gains hand obtained, "and fairs, second, imministers with the learning till," and fairs, second, imministers with the learning till, and fairs, and the second properties of the second in the defect. For a lear that he was writted to distilluction the sound possible of the second impossible of the second imposs A his labors, and, other the inspiration, is off him, visiones the investigation and experi-sits 10, 10 and 10, 4 as meaning the resi-pited autocome. The universe resources at com-said, the greater his offerts at invention. A see find in the half forty-live distinct involutions and immovements under way. All the large und reported for his meteris and the profits this diston. For a long then the was, and initial distinguish the second positioned, and of a result. At least to could be entired to entire the second to entire the second to entire the second to entire the second to entire the second to entire the second to entire the second to entire the second to entire the second to t The state of the s

Design of the control many is communitied consequenting for the intermediate consequenting of the large style o

manufacturer ane 1128 1 Automatic Phonography.

Telegraphy, or writing at a distance, requires th intervention of man in every detail, the same as in the case with phonography, or writing by sounds. In this respect photograph writing, or rather painting by light, is far in advance of the sister branches name as here man has only to prepare softable con when nature herself takes care of all the details and city watch, and meaning the directions and the defilit and the platers overgiving capsaged to the camera, and the operator need not modelle with any detail, need the platers over think of the platers is rell, but only prepare, and watch, and meaning the directionates under which high

control with an extension annual terror size of the control of the

On the other hand, if the reporter is a man of culture, On the other hand, if the reporter is a man of course, and understands the subject he is reporting, he may improve upon the speaker, round his conteness, which, in the excitement of catempere speech may have been expressed somewhat creately. We have been the greet-iful recipionis of the latter favore, but also desperator

taufferers of the former. What is wanted, therefore, is an instrument while will give as truthful a record of what is said as it photographic camora gives a record of what is ayer and it is to the credit of Mr. Thomas H. Edison to by

newloced cos. The rescribed principle of this instrument is a thin metallic membrane, which is put into vibration by the voice; in the reliable of this membrane is a point and tached, which reaches bull way down in a groove cut over a notalile plate, enrefully avoiding contact. This groove teny he a spiral cut upon a rotating, that surface, or a screw-line around a revolving brass cylinder On this groove a piece of tinfoil is Isld, closely stuck to the surface. When now the tinfell is moved forward by the rotation of the disk or cylinder, the point will unko a depression in the same, which is like another smooth shallow groove; but when the membrane vi-

See a serious of the back of t disposition for first provided searchers, and one receives a consolidation for the search of the first based on the search of th

alphuria and Lor apperi-the whate carboy. The over and cester, leatroy-nor and cotter. The strance, and Edison was unmediately to Chrein-t "report operator," some of list first achieve-

mean take or logisticitor value used, any subsequent importants were thus he was ferited to exclude the equilibrium of the telegraph to what he supposed of the telegraph to what he supposed of when found was patting up a line on eq. He wust directly from his work, such abasels to lite historic flushered reverse ut a room full of sizely-dream screen, but his subject was unlessed to a state of the young lailout to a minute of the young lailout. and the recentury passed recessarily. He was provided to a number of the young lailing, metallic to the action of the follow-operators and in the action of the follow-operators and in the secret. Eithers in a strong believer in the booken, Eithers in a strong believer in the liberators of the secretary of the s

assisted in New York. The effort was a "withourn Estigen has silvays claimed to have macrecieds. He then went to rice, servines there dead broke and dis-sol, like burg around the office of the silvate Company for several days. Their us was comberesced and imperfect, and ify out of order. At such times the "Wellid rank to the office and demangli ar-Bell misses consistent and water. These financial contents of the second

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WASHINGTON NOTES.

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MAN'S CONVERSION—PROGRESS OF LEG-ISLATION-COMMITTEE WORK-TEXAS AND PACIFIC HILL—WONDERS OF MODERS SCIENCE.

WASHINGTON, March 23rd, 1878. The dellar of the daddes is out in far glory, the eynosure of all that get to st it, and the handsomest coin ever issue from the United States mint. The hea the man talliers States mile. The best of the problems of the

in greenbacks, that not one can be had at the freesury for less than \$1,00 in gold. The result proves what has been and by the press of the country generally that the recolding of the eliver dollar would bring both metals and greenbacks to the same level and produce practical resumption, with or without law. Mr Sherman has now arrived at the same conclusion and thinks the sliver bill or

the whole, a very good thing. PROGRESS OF LEGISLATION.

Large bodies move slow, and the concentrated wisdom of four hundred 'Amerlean Congressature enmot he expected to
bod over with the facility of froth in ginger pop, although much of it has about as much value and stability as the bubble: from earbonic acid gas. Think of the aw-making faculty from the bends o

four hundred solons, and then conden four hundred solves, and then condensing the same intent a book of whyte or write lear, and you will consequence the middlessing of appropriate. Place of all measures, support in the form of a fill person a hand down after, some of them the consective last will have recomposed. One form the last and the last a bill that comes out of committee with

COMMITTEE WORK. The position of a faithful comnan is no sinceure. He knows the work of his little syndicate is likely accepted as well and honestly done
It is his business to guard every my
against frand, folly or any feature

he place where the friends and onion the place where the frigulated opponents of a scenarie are allowed to appear to allowed on a scenarie are allowed to appear to allowed on the place of the second of the place of the second of the place of the country blace forth in forcuted displays, which are "the intendence and attention of outside and "the intendence and attention of outside and "the intendence and attention of outside and "the intendence and attention of outside and "the intendence and attention of outside and "the intendence and attention of outside and the intendence

mittee men, These highing them is not con-tinue from time to time for week and then the committee may consume a north or more in committee had before the veport. Finally this bill if it has good sick, and don't get smothanti of pigton-holed, is reported to the Moune or Scente and lakes its pince on the mission where, without a two-thirds yote, it must been its thousand rest in peace for a month or two longer.

TEXAS AND PROTECTION.

TEXAS AND FAUTTO BILL.
This bill is a fair liteatration of what I have just and. The first work in December Mr. Stephana of Georgia offered in the Homes nell it or mitted and extend the charter of the Texas & Paoine Railroad Company, so as to secure the completion of that read from Fort Worth to San Diego, This was soon followed by a half dozen other bills on the rame subject, and the whole bateli was referred to the and the whole basili, was referred to the Puellie rallroad committees in the House and Scante. After four years months of argument and completison of blist, the one originally introduced by Mr. Stepheno his beca, with few changes reported favorably to both houses. The principal arguments silvenced for its passage are: lst. Its national importance and its abso-inte necessity as a means of settling and eveloping the southwest. 2nd. The need of a computing line to save the com-try from the intokrable burden of ex-First

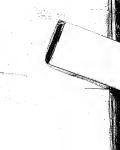
tertioente charges by the present Pacific.

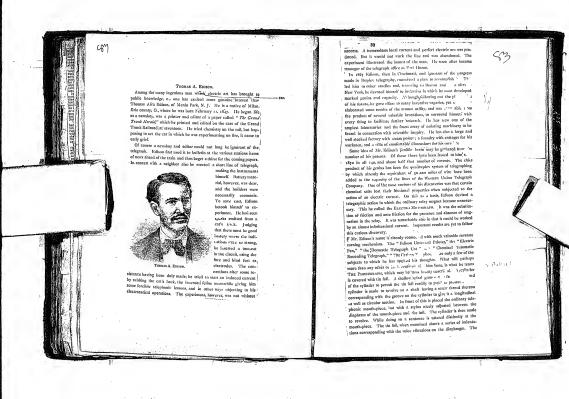
Ord. The fact that no subsidy is required, while the existence of the road would anye the government many millions in transportation and border protection-th, Because the construction of the road would not a large amount of bile capital into circulation, and revive and attenuate all the industries of the country. Truss of eacherstown are making the West and South almost as solid on this ambject as they were on the sliver bul. WONDERS OF MODERN BOILNCK.

As I write this letter-by-a process in vented by Thos. A: Edison of Non-Xork vented by Thor. A. Edited of Average ex-ligations, help referrige, to the spinnish in relaterements of this results great themse great because all its juventions, while simple in their results. This checking in the stock indicator, the displacement in their results. This checking part the stock indicator, the displace their parts and the phonograph, or talking inschine The 'phonograph, which is quite distinct from the telephone, uses no electricity and is at shapto in construction as it is wooderful in its results. Think of bot tling up a man's speech so that it can be reproduced a hundred years bence, with all the intentions and indections of voice used in the first utterance. The true

preserved with silial love and reverence; low much more precious to recall their llying voices in words of loving counse or admonition. This is no humbur, and all who choose one preserve "The words of love once spoken" by those who so before us to the shudowy

J. L. T.





Committee is now returned to its first position, a funnel placed on the I mouth-piece, the cylinder turned as before, when the words attered to the machine are all as-perfectly re-spoken by the mechanism. 'The record is permanent. The foll may be laid aside for a thousand years and yet the language be reproduced! It may yet appear that in the mysterious alchemy of the Almighty the records of human history may, so town. be thus preserved! It is one of the startling illustrations of the conservation of force. What else remains to know, who can tell?

Mr. Edison is one of the simplest of men. Careless in his costume: without manners, although intelligent and respectful; deaf enough to give him an abstracted look; fond of fun; quick and facile at carrieature; abstemious and simple in his habits, boyish in his enjoyments; . unselfish and generous; spending whole nights over some new thought which he pursues with hound-like pertinacity; - he is a singular specimen of a man having the highest natural inventive faculty coupled with the playfulness and the artlessness of a child.

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The Telephone & Select Sable Quartette Concerts.

WHAT IS SAID OF THEM BY THE BEST JUDGES.

NEW YORK,—Hev. J. E. Seiners, D. D., Peston-Willett, St. M. E. Church, "The Tel-quinous Concert less oversings drow a large ambience who were well unbestated," The ex-forded great inferre revioless operation of both the singing and specking telephones at-forded great inferre produced and the state of the state of the state of the state of the BROOKLYM,—Rev. W. W. Bowness, Pastor First Place M. E. Church: "A first design Semination Convert, that extension stores a surrey numbers of war severe the convertible of the convertible

J. C. O. REDINGTON. 563 HENRY STREET, BROOKLYN, N. Y., Manager of THE BROOKLYN AND NEW YORK MUSICAL AGENCY, (PIANOS, ORGANS AND MUSICA



DAILY GRADING DNESDAY, APRIL 10, 1878.

ERMAN AND THE BANKERS. D POWER OF THE SECRETARY

OF THE TREASURY. NOT INTIMIDATED BY THREATS. ALD ON HIS GOLD RESERVE

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PERSONALITIES.

Pirch Avenue Heter and the Archbishop of Canterbury receives an ... Bishop William B. Stevens, of Philindel-ples, has arrived in this city. General dolar O. Hanney, of Rhode Island, is registered at the Albernarie. Speaker. Randall will up to Paris soon after the autournment of Concress.

Mrs. E. L. Davenport, it is removed, will-soul leave the steep for the resultant

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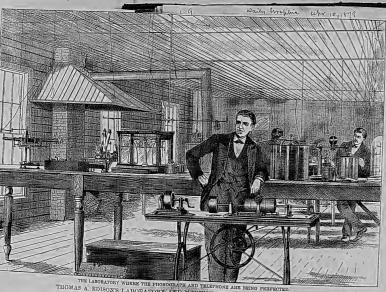
HISTORY OF A DAY.

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AMUSEMENTS.

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THOMAS A. EDISON'S LABORATORY AND MACHINE SHOP, AT MENLO PARK, N. J. PROF. PROFESSIONATE AND SENTINGS SECOND ASSESSION ASSESSIONATION.

ace on this page waily brother amen

PHINTING PRESS TO THE TALKING MACHINE-THE PHONOBLAPH MAKES A SENSATION ABONG PHENCH PAYANS.

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THE WIZARD OF MENLO PARK, | of the torenter's character as read from his face

Dearcy Prophie april0.78

A HINT TO EDISON.

In the considerable extens act to be any maps to you had be a stull of promises of utility to the race as was the telegraph; has photograph or the saving machine. It is curtous and amount to be sure, and the first sound of fits volce with human settlessible, indeeding and emphasis, is Splet trains question. In a crimina suit amonte manum entrebenies in Christian and spinish, in an article and a criminal and a

EDISON'S Speaking Phonograph

TALKING MACHINE. EXHIBITED DAILY

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No. 6 East 23d Street.

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APRIL

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bes connectation of the choicest Freech of Paris. For American diplomats going abroad, too, what a next durice it would be to pack up a perty, address on presenting their credentials, in Spanish or German or Italian, and then red; it of fuestly to the asternature of from effect European sov-

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(F. Lawrige matthers, ""Thorself," is the state of the st the abreti of the left directly on a cylinder with the risk of tearing in removing them by the means of this flit plate we will be by the means of this flat plate we will be able to have the infold made secure to a cardboard frame, which, having, holes at two foodgoorness, that [will] jest, fit over foodgoorness, that [will] jest, fit over foodgoorness, that [will] jest, fit over foodgoorness, the saidy plat way law made in the machine when used and plat way law asse place until wanted again. The reporter asked how many words The reporter sained how many words could be put upon a sheet of infold undeficiently large to corer this plate, which was about too incote in diameter. Mr. Elliwor reglied that he was confident say or didn't fifty cent awel could be easily registered mer. make the matches the registeries from the control of the control o

out all day to different languages the way to the companions seemed almost incredible. Mr. Edison was, however, perfectly serious, and proposed while, they were spont the applied the reporter, should test with him the photograph's shilly to slog a part song. A couble mouth piece was then attached to one of the machines, and Mr. Edison taking the .air, the reporter volunteering a lenot, a popular /negromelody, was forthwith sung to the me-chine. "Now," said Mr. Edison's prepar-ing to set the aylinder in metiod." You ing in et the options in models where its consistence with the control of the con The course placement of the course of the co AND PRESS.

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A STATE OF STA nite" that recommends the perfect. The rate of the perfect of the on a management of Samarleol of Cincer III, their representation of the Samarleol of Cincer III, their representation of the Samarleol of Samarleol

Jack a knownoghtwith but the term of the t at the time. "Sent up for timety days." Just as the Judge teronomices sentence the alas the Judge pronounces sentence the air resounds with these words, spoken in a voice of thunder: "Vice President Gordon is an infernal fraud." It is evidently spoken by some one in the vicinity of the Post Offee, but must be distinctly smalled to the citi-

of to find the office of the cut-ens of Alexandria. The police officers rush of to find the officeder.

From the tower of the city half-comes a voice. "Half past ten owork," and a mo-ment after the Time Warden in Alexandria is heard repeating the associatement.

As the Court is dismissed, the city hall Warden amountees in the same thindercost

storr, where there are not two usen. These are expanded in receasing, colorising or descripting the work of those below. When they have finished, the squere are cett up to the part of the colorising the same are considered as a reader who is relieved every hour. These are still of there yearhers or operations, no that each one takes hour terms of chip or the colorism of the color

All news of a reality public character is gitten eath in a condeaved form. Feromatities are not permitted. Wit is very soliton inside. First, a sectiont, delayed relitront trains, the absence of the President, the nellowant method of Congress. European loves, price of stocks, bec., come within the range of the Annunciator.

The newsysters composin that their busi-

The newspapers compoint that their business has been greatly injured alone the invention of the Accopance. That must having to to distinct will not treatly the themselves to bury agrees or to read them. The city derives a large revenue from advertisement, published to the, city through the official, Acrophone.

ANTENIONE TO A MARKET STATE AND A SERVICE STATE SUBSTITUTE FOR A MASS MEETING.

House to make the possession of an Acro-phone a infadementer, unless a permit has been previously obtained from the authori-

Her and bends filed to the amount of one the and bends filed to the amount of one thomsand feldins, that no improper use will be made of its capabilities. It is noticeable that since the invention of the Aerophoto, all the houses have been ditted with double, and in some instances, tripple windows, the more completely to extince assumed. In this way all difficulty from continuous noise is obvisted. But even on the streets one does obvished. But even on the streets one ones introsperience greater inconvenience than formerly from the noise of wagons and carriages. These latter now make no noise, hereuses of the amouthe amphalt pavements, and the unlease of street veniers crying their souds has been entirely stormed.

under goods. has been united supposed.

As the speeplo of its thresh down said wine, and the person is that decreased with a down their libers to the latest integrable of the person of

Then a delay occurs occasioned for the call-Them a delay eccurs occasioned by the cal-ing out of a nection of the first department to attend a first on Capitel IIII. Plankly the voli-lic beirs, "Constituen and Ludies, I have the heave to introduce to you the Honoratde Bankvell Blote, who will make the first ad-dress this evening. As the heaverable gen-

form that evening. As the biscoustic general content of the content of the first between the content of the con

operating cylinders scattered through the building and there will be preserved here duplicate plates of all Compressions. providing commons consistent through the property of the prope MISS CART'S CONCERT

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SEA TWEEK OF THE OWN TO HAVE COME OF THE OWN T limity removes up un navower and some this case roads to binger is concealed was the case roads to binger is concealed was lum. This poor old man who still impoles that he is a great collide, except up come mount from this keaper and gat cut on the old the collider and proposed to the old the collider and proposed to the collider of the collider of the still the collider of the still the collider of the still the collider of the still the collider of the still the collider of the still the collider of the still the collider of the still the collider of the still the collider of the still the collider of the still the collider of the still the collider of the still the collider of the collider of the collider of the collider of the still the collider of the collider of the collider of still the collider of still the collider of still the collider of still the collider of still the collider of still the collider of still the collider of still the collider of still s

The Telephone Entertainments

IN CENTRAL NEW YORK.

Her. J. L. HUDTHEIT, B. B., Paster of M. E. Church, Linia Falla,—"Yelephoto Exterialment was at a high order inversy reperi, and gave great pheasure and swittlenties in the large audience present. The exhibition of the Tellysium was indirably down, and the singling is the Quartetie was accordant in svery represent, The re-lections were over carefully made and were article that no possible objection could be made by the most fauth-

her, Lines, Eaviss, Dooler S., E. Charch, and Borr, D. Tomacr, D. B., Pauter of Preshybrina Church, Con-trolla.—"The Telephone Contert uses a pariet success, and greatly pleased a large and apprepriate audience. The metricularised used a very high-content our very respon, and effected great reside (uses out. Bollation and those possection with him. The subpute seasons of useful residence to congruence of the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on design designed on the sound as a prefer depending on design designed on the sound as a prefer depending on design designed on the sound as a prefer depending on design designed on the sound as a prefer depending on the sound as a prefer depending on design designed on the sound as a prefer depending on design design design and the sound as a prefer depending on design design and the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a present depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depending on the sound as a prefer depend

Any community who may desire a planning and instructive variety in the literary entertainments of the season will be between in securing Colonel Bridington's Teological Entertainment."

J. R. Poott, Pastor M. E. Church, Canasicia.—"The Telephone Essertainment in all its parts and as a nor. J. B. PAATE, feater J. L. Crimvis, Canarista, ""The Telephone Educations and all its particulate as white was emborrily activatively to be reduce and some in the experiment with the telephone, with singing and specifics, instead of the telephone, with singing and specific in the superiment of the explanation, not our highest expectations, and the readering of the swindern camp and prayer months; by the quartests, was such as to gratify all does and displaces around.

C. W. HEXMUR, Day, Treabout of the Young Mark Christian Association, Owens, and Oncour discourt discourt Reportance Related

for . 1. (BENTO). Proto Registrationals, indetermine—The originity principles involved in the Twiching wave developed in the Registration of the R Rev. J. F. GERCEO, Tastor Baptlet Church, Buldwinsvilla,—"The actentific principles involved in the Twic-

Prof. A. WEITE, Principal High School and Academy, Considera.—"Our people were much phonon, with the Triegions Concert, and expectably with the experiments with the Triegions. The explaination of the effect this principle was very closer and sufficiency. We think that yet of what you prevail the principles where the principles were presented to the principles where the principles was the principles where the principles where the principles were presented to the principles of the principles where the principles were presented to the principles of the principles o

Urnes Mennion Hunard,..." A marked success."



neue Sprechmaidine

Dr. G. 29. Madel. Will. Biele Lefer bieles Blattes merben fich ber

im Jahre 1872 von bem Erbauer, Brofeffor Gaber aus Wien, auch biergulante aufgelellten Spredmajdine entfinnen, bie als bas Bolltommenfie geiten barf, bas im bie, fer Richtung bielang erbacht und tonftruirt orben. Der Apparat beftanb in einer perjugliden Radahmung ber menfchlichen Sprachorgane. Gine eifenbeinerne "Bunge" bertrat bie Stimmbanber. Gine tünftliche Rafen. unt Munbhthle mit Gnumen. Bunge und Lippen aus Gnmmi, welche in unreichfter Weife berfchiebene Bewegungen, bie ben natürlichen entfprechen, ausführen tonnten, enblich ein Heines Genurr ratder für bas "31",-bas meren bie Dieftenbabeite biefes meganifden Meiferwertes. Die Bewegungen wurben burd eine Maviatur. vermittelt, welche bie Affiftentin bes Proeffore vortrefftich ju hanbhaben verftanb Ein unterhalb bee Gibes angebrachtes Bebal biente gur Gillung bes bie nothige Enft liefernben Blafebalges.

Ber biefe Dafdine. hat fpreden boren, wird fich entfinnen, baf fie Deutich beinabe natelles, Grangbilid, - meldes ber fog. Rafenfaute megen burd eine verlangerte Rafe gefprochen marb, - mittelmifpig, Englift aber auferft mangelhaft fprod. Das lehtere aus mehreren Grlinben. Das "Th" und bie brei "H" bifbeten bas eine Daupthinbernif, bas anbere aber bie manethafte Musipracht bee Erfinbers. Der beften Belen für ben lebteren Umfanb fie erte bie Thatfache, baß bie Sprechmeldine tlufdenb genan bis in alle Einzelnheiten tirfeibe Musiprode bes Englifden hatte, mie Faber. Den Lehteren ober bie Erftere Englifch fprechen gu biten, mar ein und baffeibe, eine Gigenthümtichteit, bir bei ben

anbern Sprachen burdeus nicht fo ju Tage Die Ertidrung ift natfirlich febr einfod: bie große Beranbertichteit und bie mannig foche Milancirung ber Belate im Engliften fonute eben auf giner für bas Deutide gebanten Spreeqmefdine faum ridtig jur Geltung gebrocht werben, und wann es gefchab, blente Saber's eigene Musiprache als

Diefe, bas phyfiologifche Ruftanbefem nen ber menichtiden Sprace fo trefftic ratiohenenbe, Majdire, bie bem erftauntiden Meprobultion ber Sproche gefchiebt je-

[2] Zhonat, M. Guiden, ert Efficht ist Nieder, gangleir, in aus eine Gesen. Olg erfüllig und rech nicht gen gerindbreite Gesen. Gesen gestellt gene wan jeinen breite Gater alt., Eig war nicht ist erfüglich geste Stellenstellen geste gestellt geste und jehren bereitstellt geste der gestellt geste gestellt ges 1960 nach Mero-freet überfiebelte. Geit biefer Be oeenes er voo agressen von wung und weggeg eine gleichen Alpfage. Weder hunderennistlingig Voernie nunden bon iben bereuchnennen, denneter ein jelicher an allen Wegen der Well eingefähelte finneel-gen Moparot gam Wellten und Leitgrechijten der

der Kopses jun weurn und aergroppen-chen und Kliegreife. Eeln Teierben, das der einem genf auberei Kin-ffe von liefen das Erffet und Gereffen, gefant fic von liefen bedent aus, daß ables eitzigte Wis-pen protipamentwilligigt Willen weit Louis juncht, politent die leitere nur taut gefrochen

Mubbered jeiner Apperimmte mit bem Telephen tam ibm bie 3ber, bie Edmingungen eines Cobe, dens, mie fie im Munbited bes Telephens angemen bei turnben, auf Jinnbied bund eine Nabel bauerei

meenn Conjon igni feine Iber müngeiheiti, hatte e to Gelegenhidt, mit Profelfer hann, dem Cupe-nabenne des Centifienden Indition in Blaifting, 1, deniber zu fiereben. Der grode Gelichte, ein sollte in der Allafill oder Lehre von Chal telte mi & t ben Rood, wie ber Pefer nietteles er worter, fantem ertibne bir Cade fafert für richt; und aufflitten. Unige Baden feter . frant-erfie iheregtant. Der Erfelg ift merr alle hingen

erfect theory word. Der Erfelg ift mer ein human tim gand.
"Da der Andreag Mer- und Bilfetoglenger fo ung-gener ift, das der gerene ihre Giffer retuiffen millen, bezum fie legend betiet erwise Beifelferengeleng mittle met erfolgen haben, fo aben fie fich miligiatien, ein aber parei treer fech der finnennen fin aben men Annab weg getegenen Bodete, gegen nieviges Ginerinieger von nachter Woode en euszufellen, fo daß Iche Gelegenheit, diefes Wusber ju haren, geboten ift,

bod in total anderer Beife. Aufatt bie vorgejogten Caute burd tunftliche Spradiorgane nachibreden zu laffen, wie Raber fangt Chifon biefelben auf einem tünftliche Erommetfelle auf. Die Schipinaungen welche biefes Trommelfell mocht, werben nun mittelft einer Rabellpibe automatifd

Gin maffiber Meffing. Chlinber (C) won acht Bell Lange und brei Boll Durchmeffer feiner Adfe auf einer Geite mit eie nem tieinen Schwungrate (E) und auf ber anbern mit tiner Rurbel (D) verfeben. Bor bemfelben befinden fic auf bemeglicher Bellell (G) ein metollener Ring (F) in ben ble Meine, einen Dunberiftet Boll bide Gifenblechicheibe eingefaffen ift, welche bas tünftliche Erommelfell barftellt. Un beffer unterer Geite ift eine Rabelipipe ange brocht, welche in einem auf ben Cylinbe eingefdnittenen Seranbengewinbe geführt "Zuftrtgeibe" bei Wimer Michanifers alle Abr medig, ift febach burch eine neie Er-fabung ben Mimelliants Thomas, M. This gereinbei, fo best bei Dertung ber Aurbel ber fon's balligin ben Geoiten geftellt werben. | Chilinber langfam ben rechte nach finte an ber Mabelipite barübergeführt wieb. Gin Giad Rinnbled entlid vollentetfale we fentlider Beftanbibeil ben Sugreft interef fanten Mpyarat, welcher in ber Office ber Telephon, Compounte (Tribune Buitbung Ro, 28,) jeben Rodmittag in ber tiberal geführt mirb.

Der, Muplebough, melder ben Ciceron in bappettem Ginne macht, ift ein außerft gefälliger Berr und, - mas vorläufig noch midnin ift. - mit einer ausgezeichneten, traftigen Stimme begabt. Bon einem gro-Ben Daufen gurecht gefdnittener Biunbled. Audden (10 bei 4") nimmt er ein vollfom men tabellofes, gummirt es an ben Gden und bem einen Ranbe ein wenig und tiebt ce burd Ginrollen auf ben Entimber feft. Dann bringt' er feinen Dund bidt an ben Bletallring, ber bas fdwingenbe Cheibden (Trommelfell) mit Rabel tragt, unb

inbem er bie lettere feft in bas Geminte einpagt, breht er bie Rurbet und fpricht: 'Good afternoon, Gontlemen !" Ring mit Erommelfell und Rabel werben jeht etman nam Culinber entfernt, - burch Dreben vermittelf bes Briffes 11 um ben Rapfen I. - und fiebe ba, Die Ratel bat gang bentlich in ber Rinne bie Schwingun gen regiftrirt, bie tolbrent bes Sprechens bis tlinftlide Tremmetfell machte. Es merben iebt ebenfo viele Bildmartebrehungen ber Rutbel ubifig, um jum Anfange. puntte gu gelangem ale malfrent bee Spredens Menntensbrehungen ftattacfunbeit.

Che bie Mabel wieber in bie Minne einge brudt wirb, febt ber Esperimentator ein Shalltohr (Refounter) auf ben bas fdmingenbe Scheibchen trogenben Ring auf, um Die Schallivellen au verftarten. Best brebt er wieberum vormarte, und ein gang beuttides, Deren Applebough's Stimme bis ouf einen gleich an befprechenben Mangel getrenlich wiebergebenbes: "Good after noon, Gentlemen !" begriift uns aus bem Refonater. Der erfte Ginbrud ift wiellid ilberredttigenb, und mer fich oft geleifent fint. bab er in einem Sabrhunter lebt, mo givilifiete und ungfritifiete Beften fich "auf allerbochften Befeht", unfer bem fimmmen Eigopen Guropa's, gerfleifden, bem medten mir rathen, fich biefe großartige Erfindung angujeben, die mit fo einfaden Mitteln Mognichagemefenes erreicht Bor foiden Greungenichaften bes Denjeten geiftes, ericheinen bie bintigften, "berrtich. Ben" Gient ale fabe Brutalitäten, und men fühlt fic unter ihrem Ginfinffe bes Cfeis und ber Cdaut enthoben, ben bie Welter

fdichte ber fonemannten "Geoffen" in jeber gefunden Bruft bervereufen muß Bon allen Camtbilbungen und Ebnen if am beutlidfen ju beren bas, in etmas erbobtem Zone faut gelprochene, Wort. (Berr Applebough mar felber nicht galant genug. eine ber anwefenben Damen jum "Phenegraphiren"jaufguforbern). Bundchft beut lich mar Dufen und Miefen; bann tam Gefang ; ferner Duntenebell unb Dliauen ber

auf ein Stud Sinnbled aufgetragen fennen ju irgend einer beliebigen Beit bie ber erzeugt merben an bem tanfitichen Trommeifelle und baburch an unferem el-

Die beifolgenbe Sigur wird. jur Drienti rang von Bortheil fein.



Raben f siemlich beutlich mar and ber Refrain bes Liebes bon ben brei Rrafen: Cross Cross Cross! Weit meniner bente lich war Bleifen unb - Ruffen! Due leb tere behauptete Derr Applebaugh einmal per Telephon "genuin und gang beutlich" gebort ju baben. Der Phonegraph bereigerte jedoch biefem fußen Zone bie Muf-

nahme. Ginen mertwürdigen Effett brachte ber Experimentator baburd hervor, baf er breimel bie Ratel über benfelben Theil bes Rinnbleches meggeben tieß, mabrent er jebramal etwas Anteres fante. Mis er nun ein viertes Dal biefethe Stelle por ber Mabei wornberführte, jebach mit aufgefehtem Welemeter, bilete man bentlich alle brei Sthe ju gleicher Reit. Es erzeugte bies bie auferft fomifche Zaufdung eines beftigen Borimechfele im Refonator (a tompes a tonpot). Dech tonnte man jeben einzelnen früher nelprochenen Cabe genan folgen. 3a fogar ein Bere bes Liebes, ber bamit jufammenftel übertonte gang beut lich ben Anjang biefes imaginaren Bort.

Unter ben gabireichen, verfchiebenartigen Fragen, bie pon einer ameritanifchen Buden Ungebundenheit bei folden Belege eiten geftellt werben, war aud bie, ob ber Uhenegraph nicht endmires fprechen tonne. Mir. Applebough gab ber Fragerin ben Beideib, bağ er nicht gueifete, baß fid bies bemerifieligen taffe, bach fel verläufig bie Befeltigung ber Theile nur im Ginne ber. einen Drebungaridenug geicheben und tonne er beficalb feinen Berfuch maden.

Der obenermabnie Dangel nun beftebt arin, bağ bie Sprache bes Phonegraphen benjenigen Dimbre bat, ben wir falidflichermeife ale "burch bie Rafe" ergengt betrachen. Betonntlich ware es richtiger ju fagen "ohne ble Daje", - wie fich jeber feifet burch einfaches Bufaften ber Rafe beim Sprechen übergengen tann. Die Ertiarung ift febr einfach: ba mar biefenigen Schivin gungen bas tauftliche Trommelfell in Benegung feben, weiche bireft aus bem Muntommen, tollurent bie burch ben Refo. mangboben ber Blafe austretenben barlite

Straus geten unt bas fowligente wat ten nicht treffen, fo werben nur bie erfterer ban ber Rabel auf bem Binnbled regiftrirt und ihre Biebergabe verurfacht auf unfegem Trommelfelle ben Ginbrud, ale treum ofine bie Rofe" gefproften morben ware. 34 theifte Deren Applebough meine Anficht eriber mit, und er flimmte mir fofort bei in Begug auf bas Entfleben biefer Erichelnung, Do Berr Chifon biefen Urnftanb fdien in Erwägung gezogen und bas nöthige Munb. ober vielmehr Raferfild an feinem graßen im Meute Bart aufgeftellten Banegraphen angebracht bat, bas fonnie mir ber Dere nicht fogen. Er erwähnte nur beilbufig, bog bas lettere Inftrament

bis auf 150 Tub Entfernung bentlich ge-Sant merten tomme. Ueberhaupt ift Cbifon, wie jeber tuditige, frebiame Menfc mit feinen Refuttaten, trob .206 fcon Grreichten, on's Bunberbare Grengenben, - nicht gufrieben unb arbeitet unermubligf au ber Bervollfomm. mung feines Apparates, che er benfelben jun Bertaufe fabrijiet. Berfuche mit bilnnem Rupferbled haben übrigens ergeben, baß ber Caut burd biefes Metall beffer miebergegeben wird, ale burch Binn. ift es einerfeite theuter und anbretfeite meniger haltbar. Denn eine treitere munberubger halber. Denn eine vertrere munter-bore Eigenthümitaleis des Influmenstei fil bee, des men bes Jumblech, auf bem die Leute registeit fach, auf date hinnen aufberechten fonn und wer die Auftpan-mung auf der Chilider ber Physiogengen gestellt für der bestehen Worte methenen geften den die geber Worte methenen gernen. eber In erzengen.

Betd' eine herrliche Beripetrive erbffnet Diefe Erfindung nicht für Die Butunft! Do ift gneift bas leibige Beieffdreiben ; baffethe ift udlig befeitigt. Mam febt fich an ben Phonographen und fpricht "wie einem ber Schnabel gewachfen ift" fo tauge und fo viel sinit will. Man bei nir nochig, tann und wann ein feifdes Gtud Bintbled auf. julpamen: Aue Bied wird hierauf maeritt und mohiverpadt an bie betteffenbe Mabreffe verfanbe. Der Empfänger, ber fich anbriich ebenfalls im Befige einer folden Spechniofetine befindet, fpannt bie eingel-nen Binnbleefflidejen ber Reibe nich auf und bort bann feinen Zanfende uon Mellen weit entfernten Freund beutlich fprechen. Der Boringraub giebt nich Gelegenheit, Die Stimme ben Berforbenen webberguerjeugen, obgieid biefriben foon Johre lang unter ber Eribe liegen. 3n Butunft werben allo Celminbuchblatter aus Binablech be-Reigen,und außett biefe Crimmertingen burchjulejen, wird man fic alle bie fibliden, glübenben Biebe- und Freundichaftoerguffe born Uhanegraphen vorfpeechen faffen, fo

oft man will. Der Lefer ficht, welch ungeheures Gelb fich ber nenen Erfindung tfinet. , Wie gong anbere wurde g. B. bas Teftament bes alten Banberbitt gewirtt' haben, forum er per Phonograph in ben Geriditelanle bes Rati.

getrenlich regifteitt hatte, wieben bie Tolt- Comingungen bee Trommelelle nifte mit tung bes Dotumentes wefentlich ercifigt ba-ben - uon ben in ber finniffe Somberbitt einerRabet in Blundfech eingebrudt, fombern Abbiden Schmeichel. und Liebesworten gar burch einen Stift auf ein beruftes Papier midt ju reben, Und meld' großeritges gezichnet, meldes aber ben reitenben Co-Beldili fiebt bem Imprejario ber Bulnnit linber gelpannt ift. Mudt bat ber itmeri-Ordells find bei der Americais fer Jackell, lümer gejesem ib. Rach tas der Americais fer Jackell, Lümer geles ib. Rach der Americais der Ameri bezahlt. Des ift dech gewiß viel bequeuer, — für ten Zuprefario bamptfichild, — als wie bas ewige Dernmeisen, den Aerger ann besten arbeitet, je untet die Membeau, mit Theaterbefigeen und Theaterperfonal bie ben Schall auffangt, bem menfctlichen gar nicht gerechnet, ber boch auch in Wogfall Trommelfelle gteicht; Poleffer Moter fammt. Eine Gangetin wird bann bas follog beihat in au. Dupter vor, mel- Becht, ihre Deiginnlarien auf Btech ver- der ben Sammer im menfchlichen Obre taufen ju barfen, an ben Meigbletenben verfleigern. Gie wire tontrottlich feftfel. ten, wie viel Meien fie ben Unternehmer

per Boche, Monat oter Jahr gu liefern geformen ift. Egtrabled ju erhobten Preifen! Doch mogn eine Butunft ausmafen, bie jelleicht noch gang anbere Ueberraldjungen ffir une in Petto bat. Wer weiß, es une nicht Sbifon balb mit einem Decefteie. graphen. Dramategranben und reer weiß.

mes nuch, beichentt, melde uns Rengerte, Opern und Schaufpiele zu regiftriten, nuf. gubewahren und nd libitum ju reprodugiren Aber bas neue Inftrument ift auch eine

außerft intereffante Bereicherung underer phyfitatifden Rabinette. Der ale Crperi. entalphifiter fo wortheilbaft befannte fil. fred Daner, Brofellar am Gtenens Anti. tute in Dobolen, veraffentlicht in ber April. numuer bes "Popular ScienceMonthly-Die Mefutrate feiner bieberigen Unterlumu gen mit bem Phonographen. Das mich. tight if bie Thatfacht, baf bie Ginbrilde ber fdwingenben Rabel auf bem biinnen Bied aber auf einer mit Stuß übergogenen Glasplatte biefeiben Contonren zeigen, wie fantempfindliche Blammen. Der Parifer Phyfiter Runig, weichem bie genaue Bigir-ung ber Umriffe biefer tangenben Blammen juerft gefang, fet auch einen Apparet erfunben und conftruitt, ber ale bas Borbith bes Phonographen gelten muß. Diejes ron Ranig "Bhonautograph" genaunte 3n. rument ift in ber neuefen (ochten) pon Beieren Ausgabe ber Bouldet-Munet febe Sanft an Ceite L60 algebilbet. Es un-jetigeiber fich bem Ebijen iden nur ba-tin, bes anfant bee Munbfibde ein best

Sunday Trices Une 7.1878

LADIES' DEPARTMENT ST MRS. KLIEASKTH S. BLADEN.

No Family Without its Phonograph.

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of the design conventual and the second of t

The Busy Life of One of the Greatest of American Inventors. His Career as a Newsboy, Amateur

First Line, with Cals for a Battery. What He Has Occiribated to the World's Stock of Electrical Knowl-

Over Four Hundred Thousand Dol-lars Expended in Experimente.

8

APRIL

and September 1. September 2. S

A second control of the control of t

year the success and operator, and in creatingle for the act roulectered to under foliate to beautiful for the act roulectered to under foliate to beautiful for the case of t

rates, and the point partakes of this motion, the bost-sensing of the groove will not be smooth, but will axhibts, only repeated them, but over a comply, assense view, interescepts small clearations and depressions of varie- our obstances are as an est, and were changed into a forms, all corresponding to the nature of the feeling of astonishment, which has not yet left us, namely, that the multituilnous varieties of sonorous

wheth motions of the point making them.

*2 So for the whole slidar is simple enough; but that, where there obtained and depressions is the groves, by they do in pitch, strength, rocal and concentrat storder, saming them to cut upon the point again, will represent the provided in the simple of manner, and be real-standing them. ice in the point and membrance attached the same dered back at any time. Now in regard to the application of this mathine. solions which produced them, to such a degree of pay. Now in regard to the application of this machine. osted which generated them, is something so more wrong, by past an end to all complaints about inser-sected and almost weathern, it is something so more witness, by past an end to all complaints about inser-sected and almost weathern, that we declined to be rest reporting, as the machine will reput any required. ere it when the first report reached is that the apparent of time stop week once apoles. The tisfall arrates sadisfy repeated the words spoken, and could only in preserved, and put upon the same or a similar

some registers the worst spokes, and could proxy a preserved, and put upon one assess we assess we have been done and the register of the proxy and the prox ing for distant, but each having such a machine, talk-leg into it and exchanging the talk by mail, and putting women or attained; one we did not suppose it possible seg most in not set excensing abous or most possible by such simple means. This will become more appear, then on the mechine make it possible, by samply termes from our or experiency (Fig. 1) which represents a ling the handle, to have each others neverther and most cross section; C is the month piece, in front of which it endearing expressions repeated over and over again to tem of which the membrane carries a point, which perhaps speak on some future consists. indents the tinfell lying over spiral grooves over the surface of the cylinder D. This is the essence of the series of the cymner D. This is the essence of the whole appearins, which is represented in perspective by Fig. 2, in which A is the mouth-piece, carrying the

metallic membrane with the point, which runs in the grooves of the cylinder B, turned by a handle, and

ring on its exis a screw-thread corresponding with

Flo. 1 .- Floor of Cross Section the spiral groove on the surface, which shows the in entations produced by the point in the tinfell. Below the month-piece is a screw to regulate the distance of the point from the cylinder, which of course requires delicate adjustment.

In January last when we experimented with the inrement on the occasion of its exhibition by Mr. Edison at the Polytechnic Club of the American Institute, heard that, after we spoke into the mouth-ploce



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THE NEW YORK

Vor., IV.-No. So. NEW YORK, APRIL, 20, 1878. PRICE 10 CENTS.



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The Phonograph as a Detective.

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After the displanted conversations, the after the travel time of the conversations, the street of the conversations of the control o

"Of what?"
"Marrying again," with a meet-me-be-moon-ht-slane expossion in the corner of his left

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"Westly I I Would a duck swim?"
"Reg. Brazillan Reade out, down her benuitful to the property of the control of the country of the I stating, and feeling, and reching, and heigh, all deping, and feeling, and reching, and heigh, all deping, and feeling of the country of "So would I."

as lichar. "I don't know that I ever loved her "My did you may be?"

"You say said I coe't any. It wast? Use, it wast? What wast? Wh

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sate of a Nemeyth harmere, his white waited
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varied seels.
"If I could get a directe, I would be free?" he

"If I could got a diveres, I meand be free!" be off greated chairs one, I would be free!" "Now. Rarallian Redo: Bhonds, I —" "Now. Rarallian Redo: Bhonds, I —" "In . Research warming people in her head, "In . Research warming people in her head, "In . Research warming people in her head, red free by a season of the season of the con-trol free by a season of the control of the red by a season of the control of the con-trol of the control of the control of the "Addis, tasks here you. Blanch" to the offert of the control of the control of the con-trol of the control of the control of the "Addis, tasks here you. Blanch" to the offert of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol o

had here carried on quare cases to an execu-piece, deer [" exclaimed Miss Jupe, " I should-like to see it work."

"That is easily dere. Take the handle not considered the seed of the correlation that sork the constitution of the constitution of the deep consection."

Miss Jupes transl the crash.

We all know what the photograph revealed,

Mrs. Haseleton fainted; but recovered, and in due time separated awar of ber faithfus hasband's late from his scalp, and accred the music of the future upon his ageited features.

"Malure Mar 28

al array, and furthermap.

A surplus of furthermap are a surplus of the surplus o

We shall be much obliged if you will allow us to draw the attention of your replets to a centers fact which the absorption sentille of your region for Antinian fact while the elementary of the Monte and the Mo

Recents. "The shift difficulty was friend in distinguishing from each.

In the control of the co FLERNING JENKIN
J. A. EWING

pr. Cities Music.—Not seldom have the poet scattered from their tecming fancy, ideas which ater ages of science have slouly made good in fact. lley's Witch of Atles occur the following lines:-

The drep recesses of lice odurous dwelling was over receive of the outrous themse Were stored with imagic treatures, sounds of air, Which had the power all spirits of compelling. Folded in colls of crystal admice there, Such as we have in youth, and think the feeling Will never die --yet ere we are aware. The feeling and the sound are fled and gone, And the regret they leave remains alone.

Of course this poetic dream has been realised by the phonograph of Edison, who, happily, need not fear any claim of priority of invention on the part of the

THE American " Keats" lock-stitch sewing machine a new invention, is said to be able to new through all kinds of sole leather and belting, and also to stitch leather to ping boarding.

Mr. WH. F. CHANNING, in a letter to the Tearnal of the Telegraph (America), states that any common nagneto-electric machine, arranged for giving shocks, makes an excellent telephone call—the sounds heard in a distant telephone having something of the character of a watchman's rattle, and being load exough to be heard through adjoining rooms.

A COURSE of six lectures on electric telephony, by Mr. W. J. Wilson, F.C.S., M.S.T.E., will be delivered at the Birkbeck Literary and Scientific Institution, on Saturday evenings, commeacing March 21. The syllabus includes an exposition of the elementary electrical apparatus involved; the mechanism of the car; thu nature of sound; phonographs, including Edison's; and the different kinds of telephones. The entire proceeds of these lectures will be given to the fund now being raised for the erection of a new building for th

Ir has been suggested in America to apoly the teleshore to railway trains as a means of com between driver and guard.

It is reported from Titusville, Pennssivania, U.S., that the telephone will convey audible speech if it be applied to any part of the body of the speaker instead of to his lips. The sounds are fainter by this mode of operating, but quite distinct. A person may, therefore, transmit what he is saying by merely pressing a pocket telephone against his body

Motes.

TELEPHONIANA,-in a paper recently read before the King's College Engineering Society, Mr. C. W. Con-ningham compared the vibrating plate with the tympanic membrane of the car, and pointed out that the minance of the fundamental note of a flat plate will drown a large number of the overtones of the voice. and thus cause the observed peculiarity of the tele-The tympanic membrane, on the ronrary, being of a funnal shape, is peculiarly susceptible to the influence of sound, and has no fundamental note of its own. It, therefore, transmits all audible sounds to the aural nerves without giving undue proponder ince to any particular one.

The relegraphic four rice apr 1.79

Wit are told that Mr. Edison has constructed a clock which calls out the hours by phonograph, and adds appropriate remarks. The days of the curkoo clocks are therefore numbered, if, indeed, they have not been so for a good many years, for we may now have checkwhich will mimic any sounds whatever. The approprinte remarks which a clock might make are obviously of a very varied kind. The time-worn motto " Tempus forit" would receive a new emphasis by being spoken to us, but we fear it would be as little breded as before, although delivered in the most impressive and solumn manner. Then we might have "Go to the ant thou sluggard " ejaculated at a sufficiently early hour in the ning, and "Early to bed," &c., just suggested to us at bed-time, as well as many other wise saws and copy-book morals. There would be some danger, however, of a pragmatical clock of this kind become a bore, unless its observations were both varied and amusing; but this they could easily be. How con venient such a clock will be for society to administer its delicate hints to unwelcome visitors

THE PHONOGRAPH AND VOWEL SOUNDS.

THE PULSOGEANT AND YOURS. SOUTH.

If has been pointed on by Professor Plenning.

If has been pointed on the Professor Plenning, the Professor Plenning and the Professor Plenning and the Professor Plenning and the Professor Plenning and the Professor Plenning and the Professor Plenning and the Professor Plenning and the Professor Plenning and he marks on the tinfoil does not remain unchanged

A TALKING MACHINE. PROFITED THE OF THE PROPERTY O PROPERSON NAMED IN PROPOSITION OF PERSON ned moved by clock-work that it shall to helly reproduce every candings of the brins helly reproduce every candings of the brins hand seed.

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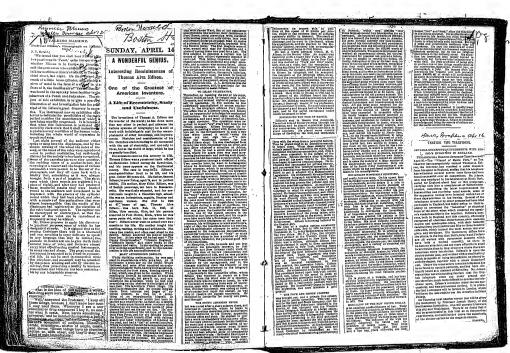
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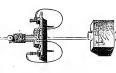
World . SUBDOOK'S BOURGE.
The legeousty of Mr. Baldwin C. Burde
of Milledgeville, should not be emulat

alcop to the music of its talking. In the morning he would again would fally but precently there gow a ramor line same thing was the matter with Berdock; the cheery gleam in his eye was said to of Millodgeville, should not be cannot go the control of the contr cincely resembled his own limits since it has the resemble of the control of the itter in the attroxy, dans on consensus any economics. Districtive money was arranged up. It was this abricking disposition on a charge of being release and districtly. It is which, by remiering it uncomforts fig had therefore for and a description of a fail to the contract of the cont then to his loose and given blot time, described handled in its section. In a section, it was supported by an additionary terms of the section of the sectio ta which is the as recomy measure bints the room and domanted his proper tannistill. And since, siter passing The Court was in amaze, and still acree compliments of the day, his friends always spake about "that little bill," and he al- was Mr. Burdock when the muchine

Insugilization of the deep has feeded activated with the first and the deep has a second activated with the first and the second activated with the first and the second activated with the first and the second activated with th theeriest tone, "Quite well, I thank you;" how are you?" "Yes, but I think we will have min before long," and " really

"I den't see how I can do it just at present. I have a heavy note to meet next week, but on the next Thursday 1 " can probably make it all right with you,"
he took his double down to the front door and set it out on its travels. It succeeded admirably in its week for several days, for the town was quiet, and when at night Mr. Burdock went out to bring it home he com mently found it standing quietly down by the Oconee River of in the mindle of the street, safe and sound and apprinciply enjoying the score. Then he would wind up the walking part of it, whisper a new words in its ear. to as to have a pleasant evening and cheer self with convenention as he went home, take it up to the house and deposit to in a corner, set it to work and an outsely to





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The Telegyaph.

r on the disk than surface alone were

EVENING TELEGRAPH

apr 2.18-18 WHAT ARE WE COMING TO?

mont anome be imitated in telephony. Mr. Newth, of the Chemical Laboratory, South Kennington, ands his telephone to work test when he speaks into it in

Telegraph the

Journal

EVENING TELEGRAPH No. 108 South THIRD Street.

WHAT ARE WE COMING TO?

apr 2.18-18.

WHAT AIR WE COULD TO?

"The proper was a support of the pr

as possible to the plate without touching, is to sound heard when the parts are too near together.

Mr. Precee has found that, if the telephone wire be are avoided; and further, if the sheath be of iron, magnetic induction also is avoided and the telephone

that how view may be about moder could be, with the minimum of the country of the country of the country of an about the country of the country of the country of persons and ying me the green for 23 minks. More than 10 min of the country of the law country of the country of the country of the country of the law country of the country of the country of the country of the law country of the country of the country of the country of the law country of the country of the country of the country of the law country of the country of the country of the country of the law country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the set at an under the country of the co

entrent and as a detecter of currents which are in-capable of influencing the galvasometer. It shows that the form and duration of Faraday's magnete-electric currents are dependent on the rat and duration of motion of the lines of force profin ing them, and that the currents coused by the aboration of a inspectic field vary in strength with the mit of alteration of that field; and further, that the infinitely small and possibly only molecular movement of the iron plate is sufficient to consider the requisite motion of the lines of force. Mr. Priece has also pointed out that the telephone explodes the potion that icon takes time to be magnetized and de-

The best way to adjust the impact, that is, as near the vowel sound at or o clearly and londly; a jar is inclosed in a conducting shouth, which is in connec-tion with the earth, all effects of electric induction

sorks perfectly. surks perfectly.

The leakage on pole lines is fatal to the use of the selephone in wet, weather for distances beyond five

Hon. Rollo Russell, says Nature, has made some Hen, Beile Bassell, says Mater, has made seme reperience, which go for prove that there is an need to insulate has wire connecting pair of telephones. I clearly show the first and the made of the seme connecting pair of telephones. I clearly show the first show

of the Chemical Laboratory, South Kensington, finds bit telephone to work best when he speaks into it in a slanting direction.

Телевтари the ŏ ournel

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Scrapbook, Cat. 1032



Plogging by Machinery. Ploursing by Machinery.

To the Entron or The Sun-Sir; As all crimetof these should be possible by a seemal habitar, please ask Mr. Edhan to invent a flexing machine, see how exactly, we could then adjust, the parishment of tradigating, much ar lattle, heavy or final, description or tradigating, in the med ancient

'If novelty can be ascribed to anything If novelty can be ascribed to anything under the sun, the phonograph is entitled to that under yet a correspondent of the MINE (Fig. 1s, monitored by a phonograph shown on the Fourier and the Compacine, that more than type controls ago Cratico is Berbarach and a changulon of this wonderful device. In its "Journey is the MINE (in the MINE) and appear, wrote thus:

appear, wrole faus:
"My denote that have, "To famine you, I leave y
hood." This book was in a -box, I fin uperalist is
freed a metable for respectively more than the
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We think, however, that a patent could hardly We think, however, that a patent could hardly have been get on securiosofy reporaria surfaced of a reinding lancuage out, of a box. In Mr. Zhanso's lavention there is, no moonshire, nor anything moony. It is 'true, boyever, that he has made vielled and audithe more than the inset during dreams of moon voyagers or other monarche of the imagination.



PRIDAY, AUGUST 0, 1878.

MANUFACTURING MIRAGES.

BY WHICH OMERCES THOUSANDS OF MILES DISTANT MAY DE SEUN.

ir, James Greekm's Method of Ascertaining the Exact Whereabouts of Ships at Sta-Satisfactory Result of his Experiments. To photograph a salp on the high seas, To photograph a ship on the high seas, distant from 100 to 5,000 mHzs, giving the name, the latitude and longitude, and the destination taken from thalk marks on her clock, is a prob-lem the solution of which Mr. James Grasham of 233 Greenwich street is working out.

of 233 Greenwich street is working out.
At the first inlame the neition would seem to
have emanded from a disorgentized brain, or to
have been the imaginizing of a downer. Beech,
however, is not the cash. The idga is the result
of a long series of experiments by a particul
merian claud, one of whose laventions, the outmarine raveiling torpodo, charged with explaairy asphalmen, has good for toward evrolutions.

iting naval werfare.
The phonomenon of the mirage is well known to meet seamon. Under pounting times-bleric conditions, ships and prominent points are often made visible by them on the apparent horizon at distances varying from 50 to 150 miles. Those figures are invariably son inverted, or, as pictographers say, negatively. The theory of Mr. Gresham is founded upon the filmes. In fact, no has discovered a method of producing an artificial mirage, the principle of thick he ears is the same at that which reflects in the middle of the desert of Sahara, the images of lakes and waters a thousand miles

remote to faith, that where it thousand miles of faith, and writer it thousand miles of faith.

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New Dork Daily Tribune.

FOUNDED BY HORAGE GREELEY.

MONDAY. AUGUST 12, 1878.___

Sir William Thomson was an authority specially relied upon by Mr. Edison in his at-tack upon Professor Hughes and Mr The letter Sir William has ad-Precen. dressed to THE THIBUNE comes, therefore somewhat as the decision of an umplee; and its purport is such as to make the friends of Mr. Edison regret his impetuous accusations Sir William is clearly of opinion that Edison was right in claiming that physical principle used in one is the same subsequently used by Professor Hughes in the microphone. But he is countly clear that a Frenchman used it rears before either of them, and that another Franchman had, still earlier, pointer out the law on which it depends; and his conclusion is that Mr. Edison owes an ample apology to the scientists he accused of betraying and robbing him. It seems plain that Mr. Edison must either make this apology promptly, or show Sir William that he is

LETTERS FROM THE PEOPLE

THE MICROPHONE CONTROVERSY.

A LETTER FROM ARR WILLIAM THOMSON—HER DEFERCATES THE PERSONAL ACCUSATIONS THAT THEY CARRON
TELEPHONE AND THE MICROPHONE EMPLOY THE

To the Editor of The Pribuse.

To the Refere of The Tribune.

Son: The pleasure with which two beautiful discoveries and inventions—the telephone, the pleasure, and the interophone—have been appreciated using the property of the property

before troubling the public fails with most near No. 200. But the public fails surely have reasoned out life via. Delicious might a marked have reasoned out life via. Delicious might a marked the public fails of the public power fails when the public fails of the public power fails in the contract of the public power fails on the public power fails on the public power fails on the public power fails on the public power fails on the public power fails of th

any consideration whatever to his claims. Nothing one be more unfounded than the accusations. Mr. Procee bimself gave, at the Plymouth mosting of the British Association has August, a clear and thor-oughly appreciative description of Edison's earloyn telephone, and published it in the printed reports of his lecture which appeared in the public journals.

The heautiful results shown since the beginning of
the present year by Mr. Hinghes with his microphone, were described by himself in such a manuer as to leave no doubt but that he had worked them out quite independently, and that he had not the slightest intention of appropriating any credit due to Mr. Edison. It does soon to me that the physical principle used by Edison in his carbon telephone and by Hughes in the microphone is the same, and that it is the same as that used by M. Clérac, of the French "Administration des Lignes TélégrapLiques in the " variable resistance earlies tubes," which he had given to Mr. Hughes and others for important practical applications as early as 1866, and that it depends entirely on the fact long age pointed out by Du Moncel, that increase of pressure between two conductors in contact produces diminution of elec-

I cannot but think that Mr. Edison will see that he has let blussel be hurried into an injustice, and that he will, therefore, not rest until he retructs his accusations of had faith publicly and amply as he made them. I remain, sir, your obedient servant, William Thompson,

Yacht Lalla Rookh, Course, Isle of Wight, July 30,1878.

Scientific American.

August 10, 1878.]

CROOKED JUDINALISM.

In the English scientific journal Beginzering, of June 12, 1873, appears a state of the September of September 1874, appears a state of the September of September 1874, appears a state of the September 1874, appears a state of the Indoor, the September 1874, appears as the September 1874,

The first of the control of the cont

For example, while he uses Fig. 21 of Mr. Precent's load, he leaves out the very important little diagram numhered 20. It represents one form of the apparatus to which it William Tomosa refers in the letter in which he says: "It is certain that at the meeting of the British descriptude of the properties of the properties of the properties of the properties of the properties of the properties of the load of an exterior tologlone was described as having been lavasted by Mr. Edison, which was identical in principle and in some details with that trought forward by Mr.

Hughes."

The figure looks altogether too much like one form of Mr. Hughes' microphone to allow of its use in an article intended to establish the novelty of Mr. Hughes' discovery.

tended to establish the novelty of Mr. Hughes' discovery.
The omissions from the text are quite as significant. Under the first cut used in Engineering, Mr. Pressott says: "In the latest form of transmitter which Mr. Edison has introduced the vibrating dilaphragm is done away with altegether.

It having been found that much better results are obtained when a rigid plate of metal is substituted in its place.

The inductibe plate, of course, merely serves, in consequence of its comparatively large area, to concentrate a considerable portion of the senorous waves upon the small carbon disk or button; a much greater degree of pressure for any given effort of the speaker is thus brought to been on the disk than

could be obtained if only its small surface alone were used."
The Explorite could superpresses this Important
The Explorite could superpresses the Important
statement. Here were the puts in the place the fails
statement. Has "the cascus he puts in the place to the fails
statement. Has "the cascus heightings, whenting under
transmitter consists in custing admirage, whenting under
ten influence of sonoreus witness, to vary the pressure
upon, and therefore the resistance of, a pleco of carbox,"
and so on.

A little further on, while repeating Mr. Edison's recount of the experiences which led to the handsomess of the vi-bating disphangen (sugs 220 of Mr. Pracout's book), the Regioner's westigen drops out the following remark by Mr. Edison: "I discovered that my principle, millio all other accustical devices for the transaction of speech, did not require any vibration of the disphangen—that, in fact, the sound ways could be transformed little electrical muleutions.

without the movement of any intercening mechanisms." Werea yet, in the very face of Mr. Dilbards sesterian to the centrary—in near-time which is could not by any possible very face of Mr. Dilbards and the centrary of the c

In this way throughout the offending-article, the writer persistently robs Edison to magnify Hughes, giving credit to Mr. Hughes for exactly what he has suppressed from Mr. Prescott's book. To lusist as he does, that, because Mr. Edison covers his carbon button with a rigid iron plate, in h's very practical telephone, therefore a vibrating disphragm is an essential feature of Mr. Edison's invention, is a very shallow nullble in the face of Mr. Edison's and Mr. Prescott's statements that the carbon button acts precisely the same in the absence of such covering, though not so strongly. Mr. Edison's laboratory records show a great variety of experiments in which the carbon was talked against without "any intervening mechanism." In a telephone for pop ulur use, however, to be held in the hand, turned unside down talked into, exposed to dust and the weather, it was obviously necessary to use some means for holding the carhon in place, and to prevent its sensitiveness from being destroyed by dirt and the moisture of the breath when in use. For this purpose a rigid iron partition seemed at once convenient and durable. It is not in any sense a "vibrating dia-

whengen." With a persistence worthy of a better cause, the Engineeries writer returns to the point he scene specially auxious to enforce. Toward the end of the activation work in the control of the property

The animus of all this is only too apparent. Altogether the article is the most dishonest piece of writing we have over seen in a scientific periodical; and although the article for the honor of scientific journalism, to think that the manrusted member of the acceptance or whose position seemed to justify the acceptance mees without any attempt at their verification. own here to whom, in London, at Mr. Edison's Prescott sent proofs of the matter abused, torequest, burden of dishoner lies upon or between a of discovery, and its uses are restricted to telephony. prominent British efficial on the one hand, and on the other a journal which cannot afford to leave the matter unexplained. Whoever is hurt, we sincerely hope that the fair fame of scientific journalism for candor and honesty may come off un-

LETTER FROM PROFESSOR HUGHES,

The one represents a patentials.

We would not question Mr. Hughes' sincerity in all this.

No doubt he heatstly believes that the invention of Mr. Ed-No doubt he honorthy believes that the invention of Jir. Ze-ion "represents of field of discovery, and it scrittfered in its most to deployar," which is he' microphono-demonstrate; and represents the whole field of nature." But the fact of his believing this is only monitor proof that he utterly fails believing this is only monitor proof that he utterly fails.

London, July 2, 1878.

D. E. Hennex. to understand or appreciate the real scope and character of

Mr. Edison's work.

To those familiar not only with Mr. Edison's telephon but with the long line of experimental investigation that had to be gone through with before he was able to control the execusive sensitiveness of the elements of his original discovery, it is very clear that Mr. Hughes has been working upon and over-estimating the importance of one plase, and that a limited phase, of Mr. Edison's investigations.

We propose shortly to review at length the evidence of Mr. Edison's priority in the invention or discovery of all that the microphone covers; this purely as a question of act-entific interest. For the personal elements of the controversy between Mr. Edison on the one side and Messes, Preces and Hughes on the other we care nothing.

-The Edison Carbon Telephone and Hughes' Microphone. To the Editor of the Scientific American :

Mr. Edison finds a resemblance between his carbon telephone and my microphone.

I can find none whatever; the microphone in its numero forms that I have already made, and varied by many others since, is simply the embediment of a discovery I have made, in which I consider the microphone as the first step to new

and perhaps more wonderful applications.

I have proved that all bodies, solid, liquid, and gaseous, are in a state of molecular agitation when under the influence of sonorous vibrations; no matter if it is a piece of board. walls of a house, street, fields or woods, sea or air, all are in this constant state of vibration, which simply becomes more ovident as the sonorous vibrations are more powerful. This I have proved by the discovery that when two or more elec-I have proved by the discovery inst when two or more efec-trical conducting bodies are placed in contact under very slight constant pressure, resting on any body whatever, they will of themselves transform a constant electrical cur-

rent into an undulatory current, representing in its exact form the vibrations of the matter on which it reposes; it is the collistrial columns of Segmentrag, we preserve the complexed arrangement and so special many special m quonor or scienting permanent, to minch time one many | teriar, and to most experimenters the torto simple from initial that of that paper was not party to the ruscally set. It | that I have described form the best and most sensitive mit of that paper was not pury to tuo munity gas. **.

| that I have described the model of the model of the model of the model of the model of the model of the model of the model of the model of the Mo

oxidize. oxiume.

Mr. Edison's carbon telephone represents the principle of the varying pressure of a disphragm or its equivalent on a button of carbon varying the amount of electricity in nerescott some process on two consister assected, to proceed some varying use amount or electricity of ac-teriors of the outs used, in Engineering. Ac-

The three nails I have speken of will not only do all, and that far hotter than Edison's carbon telephone in telephony, but has the power of taking up sounds inaudible to human cars, and rendering them audible, in fact a true microphone; besides it has the merit of demonstrating the molecular action which is constantly occurring in all matter under the influence of sonorous vibrations.

Here we have certainly no resemblance in form, materials, We print in another column a letter received from Mr. D. or principles to Mr. Edison's telephone. The carbon telewe print manomer cutoma a netter received from air. De le Hughes concerning the distinction in finds between his inferophone and Mr. Editor's carbon tolephone. Mr. Hughes inferophone and Mr. Editor's carbon tolephone. Mr. Editor's carbon tolephone and Mr. Editor's carbon tolephone. Mr. Editor's carbon tolephone and Mr. Editor's carbon tolephone. Mr. Editor's carbon tolephone and Mr. Editor's carbon tolephone. Mr. Editor's carbon tolephone and Mr. Editor's carbon tolephone.

is very confident that the two investions have nothing in
common, and that they hear no rescubbance to each other in
field of nature; the whole world of matter is suitable to act upon, and the whole of the electrical conducting materials

The one represents a patentable improvement; the other





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nt following contrice and cloquent account the development of the Electric Telegraph is the Introduction to Mr. G. R. Present's the The Speaking Telephene, Talling Planne of the Electric Tel

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The discretical there will undoubt will undoubt instrument, form of tele examining the country with remarks

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SKETCH OF THOMAS ALVA EDISON.

Be G. M. SHAW

FIMIS remarkable inventor, of whom the public has recently heard so much, is still a young man, having been born in 1847 at Milan, Eric County, Ohio. His mother was of Scotch parentage, but born in Massachusetts; she was finely educated, literary and ambitious, and had been a teacher in Canada. Young Edison's only schooling came from his mother, who taught him spelling, reading, writing, and arithmetic. He lost his mother in 1862, but his father, a man of vigorous constitution, is still living, aged seventy-four. When he was seven years old, his parents removed to Port Huron, Michigan. The boy disliked mathematics, but was fond of reading, and, before he was twelve years old, had read the "Penny Cyclopaelia," Hume's "England," and Gibbon's "Rome." He early took to the railroad, and became a newsboy on the Grand Trunk line, running into Detroit. Here he had access to a library, which he undertook to read through; but, after skimming over many hundred miscellaneous books, he adopted the plan of select reading on subjects of interest to him. Becoming interested in chemistry, he bought some chemicals, and fixed up a laboratory in one of the cars. An unfortunate combustion of phosphorus one day came near setting fire to the train, and the consequence was, that the conductor kicked the whole thing out. He had obtained the exclusive right to sell papers on the road, and employed four assistants; but, not satisfied with this, he bought a lot of second-hand type, and printed on the cars a little paper of his own, called the Grand Trunk Herald. Getting acquainted with the telegraph-operators along the road, he took a notion to become an operator himself. In his lack of means and opportunities, he resorted to the expedient of making his own apparatus at home. A piece of stove-wire, insulated by bottles, was made to do service as the line-wire. The wire for his electro-magnets he wound with rags, and in a similar way persevered until he had the crude elements of a telegraph; but the electricity being wanting, and as he could not buy a battery, he tried rubbing the fur of cats' backs, but says that electricity from this source was a failure for telegraphic purposes.

tried, Junea una suma en en en en, a a frain sea suicheling on to a side rack at Monnt Clemens Station, this station-gents little boy, two years old, crept on to the track shead of the error. Elizion and the diagor, aprang to the ground, and landerly secreeded in avaing the youngeter. In father, the station-matter, being a nor man suma, before he gradually the product of the production o



of this time he was able to go into the telegraph-office at Port Hures. of this time he was and to go into the teregraph-once at Fort Huro. Here he worked for six months, and then went to Stratford, Canada, Here he worked for six months, and then went to estration, Ganada, as night-operator. He soon after went to Adrian, Michigan, where, in as night-operator. He soon after went to Auran, Anengan, where, in addition to his telegraph-office, he had a small shop and tools, to which addition to his telegraph-onice, he had a small shop and tools, to which be turned his hand at odd moments for the purpose of repairing instruhe turned his nand at our moments for the purpose of repairing instru-ments. This situation he lost by violating some rule while absorbed in ments. This situation he lost by violating some rine while absoluted in his workshop, but in two months after appeared in Indianapolis, where his workshop, but in two months after appeared in indianapoles, where he came out with his first invention, an automatic repeater—an arrangehe came out with his first invention, an automatic repeater—an arrange-ment for transferring a message from one wire to another without the aid ment for transferring a message from one wire to another without the aid of an operator. From this place he went in turn to Cincinnati, Memphis, of an operator. From this piace ne went in turn to tincinnati, mempais, Louisville, New Orleans, and back again to Cincinnati, where we find bim in 1867, at the age of twenty, absorbed in projects of invention. His man in 1864, at the ago of twenty, absorbed in projects of invention. His utter negligence of dress and appearance, his insatiable thirst for readutter negligence of dress and appearance, his insatiable thirst for read-ing, and his enthusiastic attempts to solve what appeared to others imng, and his entinusiastic attempts to solve what appeared to others in-possible, together with his willingness to work at all hours of the day possinc, together with ins winingness to work actain moins or one only or night, carned him the name of "Looney," by which he was best or mgm, carnen mm the name of "Looney," by which he was best known for many years. Reaching his office here one night and finding known for many years. Heaching his office here one night and mining it "on strike," he took in the situation, and went to work, keeping it it "on strike," he took in the situation, and went to wors, seeping is up all night, working to his utmost, receiving the press dispatches. up an ingui, working to his utmost, receiving the press dispatches. For this act he was raised from a salary of \$65 to \$105 per month, and For this act he was raised from a sheary of too to the per monto, and given the best line in the office. While here he conceived the idea, given the best time in the office. White here he conserved one mea, afterward perfected in Boston, of sending two messages at the same anterward perfected in Douton, of sending two messages as the same time over the same wire. His "everlasting experiments" were looked ame over the same wire. His "evertasting experiments were mosses upon with disfavor by the management, and the imagined neglect of open wan unsured by the management, and the mangined neglect of his work caused so much dissatisfaction that he quit the office and re-

Here he soon received a call from the manager of the Boston office there he soon received a can from the manager or the rosson once to be the Boston operator on the "crack" New York wire. The manager knew him, but the appearance there of the very similitade of a green country gawky raised a short of laughter at his expense, which green commry gawsy raised a short of tauguter at mis expense, winen almost unnerved him, and, to make the matter worse, before he had somes tomersen mm, and, to make the matter worse, before he had time to compose himself, he was shown his place to make a trial. The time to compose nimself, he was shown his place to make a trail. The position was the dread of operators; the New York man was one of the position was the dread of operators; the New York man was one or the fastest senders in the country, delighted in victims, and in this instance assess symmets in the country, delighted in victims, and in this manages set at his instrument with a grim satisfaction, waiting to open on the sat at ma instrument with a grim satisfaction, waring to open on one meeting and chuckling with his Boston comrades over their expected hese man, and chuckling with his Boston commutes over their expected fun. They commenced, and the New York man crowded his sendington, every commenced, and the New York man crowded his atmost, with never a "break" by the new man receiving. aspect to as utmost, with never a "break" by the new man received.

At the end of the message, the astonished and exhausted New York operator adds, "Who the dence are you, anyhow?" to which the Special mans, "I no the dence are you, anyhow?" to which one man at Boston promptly replies, "I'm Ton Edition—shake

We can make but brief mention of a few of the many incidents We can make but brief mention of a few of the many incomes connected with Mr. Edison's history. In the Boston office one of his omaccine with Mr. relison's history. In the Boston onace one or one first efforts was at "internal improvement." The office was intested with a contract of the contract of th arse cuarts was at "internal improvement." The office was intested with cockroaches. He set up an apparatus for their automatic destruction. Mr. Edison's forte is automatic contrivances. He armured strips of metal around the bottom of the walls in the room, and connected them with the opposite poles of a battery, so that when the bugs stepped from one to the other, they closed the circuit and their lives at one operation, and made room for others.

In Boston Mr. Edison fixed up a small shop and continued his experiments, which he put into such practical shape that he saw more money in them than in his salary. He worked out the idea of his duplex telegraph, and went to Rochester in 1870 to test it between that place and Boston. The effort failed, though Mr. Edison says it ought to have succeeded. He then came to New York, scarcely knowing what to do next. He hung around the office of the Gold Indicator Company, studying their cumbersome apparatus. One day some part of it failed in a time of excitement; Mr. Edison offered to remedy it; he was langued at incredulously; but the case was desperate, and he was allowed to try. He succeeded; and the managers, ready to perceive the value of such a man, made him superintendent. He introdown improved apparatus, invented the gold printer, put up a private line, and finally sold it to the Gold and Stock Company, together with his services, or the privilege of having the first option to buy his telegraphic inventions. He was now fully launched on a tide of success. To furnish his instruments, he established a factory in Newark, New Jersey, employing three hundred men. As a manufacturer he was not a success. If he had an order for any of his inventions, and, after having made a part or all of them, he invented an improvement, nothing would do but he must incorporate it, even though at his own expense. At last, finding that the close attention demanded by his manufacturing business was incompatible with the freedom demanded for invention, he abandoned it, and, two years ago, bought a site for an experiment-shop at Menlo Park, on the Pennsylvania Railroad, twentyfour miles from New York, a mere flag-station, with about a dozen houses, mostly his own and his workmen's.

On the crown of a knoll, and looking, for all the world, like a country meeting-house, minus the steeple, and with the addition of a porch, is a long two-story white frame building, in the middle of a little lot, surrounded by a white picket-fence. This is Mr. Edison's shop. On the ground-floor, as you enter, is a little front-office, from which a small library is partitioned off. Next is a large square room with glass cases filled with models of his inventions. In the rear of this is the machine-shop, completely equipped, and run with a ten-horse-power engine. The upper story occupies the length and breadth of the building, 100 × 25 feet, is lighted by windows on every side, and is occupied as a laboratory. The walls are covered with shelves full of bottles containing all sorts of chemicals. Scattered through the room are tables covered with electrical instruments, telephones, phonographs, microscopes, spectroscopes, etc. In the centre of the room is a rack full

THE POPULAR SCIENCE MONTHLY.

of galvanic batteries. On one of the tables is a phonograph, run by stems-power, with a belt through the floor to the machine-shop, and beside it a copy of Poe's poems. In the rear of the room is a fine pipe-organ, with an open Moody and Sankey book on it. At the opposite and of the room stands Mr. Editon, telling the writer that there is no philosopher like Herbert Spencer, no writer like Victor Hugo, and no poet like Edgar A. Ivo.

The Associated Peess wires run through his Industatory, and amon he picks up his telephone and clarks with Billadelphia, or with 1906, he picks up his telephone and clarks with Billadelphia, or with 1906. Barker, at the University of Peamaylemin. When the form the man himself—a heyish face, an unneutratations manner, or the Billadelphia George Bergs and, in fact, the undentaged whole that Granerly part in an appearance as the new man at the Boston office. The crowd of farm-boys that one to be seen to make the desired and the Billadelphia of

We cannot here speak at length of his numerous invanion. In owns one hundred and firty patricts, but of these only shours a down size of real value, the others are taken out to guard all approaches to the valuable patricts. Among his per patricts are his poundage to chergady, by which four messages may be sent at the same time over the same wire; his electric per, for multiplying opciose fletters or drawings, and which consists of a tubular pen in which a needle plays with a seeing mathine-like moint of irre by electricity, which perforates the lines drawn with it, the perforated sheet being afterward inted and used in great then his research through the minute perforations and levers of present them is present through the minute perforations and levers of the property of the property of the property of the telephone affect a finely-dotted tracing like the original. His evbon (telephone affect is finely-dotted tracing like the original. His evbon freedom.

When Mr. Gray bought out his musical telephone, which set stadents to experimenting in that direction, Mr. Elifson was trying to inprove the deplone, the invention of a German, Mr. Gray's appearing grave deplone the invention of a German, Mr. Gray's spenting grave may be a superimental of the deplone of the same place in which Mr. But was the are seen, was interested. Between Mr. Gray and Mr. Elifson was to leave Mr. Gray-ramading was survived by which Mr. Elifson was to leave Mr. Gray-ramading was survived as unundested in the direction of multiplicy telegraphy; which Mr. Gray, on the other hand, would not interfere with Mr. Elifson's attempt to making the electromagnet telephone, Mr. Bell his it and brought in out at the Centennial. Mr. Elifson acknowledged hisself fairly anticipated, and league to experiment with a view to finding a sultime that would be classify, not a speak, to the passage of a current of electricity-that is, whose resistance to a current would vary with pressure. He began at one end of his stock of chemicals and tried every one of them-some two thousand-but met with no satisfactory result. Finally, when everything was exhausted, and he was looking around for what next to try, an assistant brought him a nicce of broken lamp-chimney with an incrustation of lampblack : this was scraped off, pressed into a little cake, and tried. He had at last discovered what he was in search of. By placing it between two plates of metal conneeted with the opposite poles of the battery, and making one of the plates large, to receive the force of sound-waves, this varying pressure would make the carbon cake more or less clastic to the passage of the current of electricity, and the invention of the transmitting part of a new telephone-all his own-was complete. For the receiving part nothing was necessary but an ordinary electro-magnet with a diaplaragm. Experiments with this "carbon telephone," as it is called, are unfolding every day its marvelous sensitiveness, as shown in its microphonic manifestations, which have been exciting so much wonder. No less successfully is it being brought to measure the pressure caused by infinitesimal heat-for instance, that received by us from the

Coming, lastly, to the phonograph: while experimenting on an automatic transmitter in the early part of last winter, Mr. Edison tried tinfoil, instead of paper, to receive the indentations of the Morse recorder, and was surprised to see how readily it received them. These indentations, passing under another needle, were to repeat the message automatically to another wire. A few days after, while handling a telephone, the fancy seized him to fix a ucedle-point to a diaphragm, and see whether the vibration of the diaphragm when spoken against would cause the needle to prick his finger. It did. Then he wondered what sort of an indentation this would make in a slip of paper. He tried it, and, sure enough, there was the semblance of an indented track! What would be the effect of drawing this slip under the point again, following the working of the automatic transmitter? He tried that, and the result was one which almost made him wild. A sound like the stifled cry of words seeking birth came from the diaphragm. No sleep or food until he had made a grooved cylinder, put a piece of tin-foil instead of paper on it, attached the diaphragm, and shouted into it, when, upon turning the crank, the words came back with a maryelous elocution, and the phonograph was a success.

and the phonograph was a success.

Mr. Edison has recently received the honorary title of Ph. D. from
Union College.





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mbre-correspondent de l'Institut, t), Louis Callletet. Nognan, ingénieur civil des Mines

Jablochkoff, A. , P. Tremaux, Altr. Jacquemart, etc., etc.

ressées à M. G. Puttemans, directeur, tout ce qui concerne buique à M. Nogues, directeur de l'Union des ingénieurs.

Ce charbon a toujours été employé dans les piles électriques, justement parce qu'il est corps non oxydant; c'est encore la raison qui me l'a fait choisir, dans mon microphone, comme point de

« Entre mon microphone et le téléphone de M. Edison, tout diffère de la façon la plus absolue : principe, forme, résultats obtenns. Je crois donc avoir le droit d'employer les métaux ou solitomis. Jo crois done avoir le droit d'employer lea métaux ou be- conducteurs dont les propriétés sont connues, et par convé-quent dans le domaine public. Si j'avais supposé un instant que M. Eddon pouvait seul employer, comme contact, du charbon ut cormues, rien ne m'empéchait de choisir un métal, le platice, par exemple. Mais, l'objet du téléphone de M. Eddison destit d'obtenir une variation de oernant su norque d'une variation de pression comple. sur un diaphragme, et comme je n'emploie pas de diaphragme, pau la forne de mio naparefidifire de la forme de l'appareil de Ju Edison, que, comme je vous le disais plus haut, le principe de la forne de l'appareil de l'appareil de l'appareil de M. Edison, que, comme je vous le disais plus haut, le principe de l'appareil de l'ap

Dans votre dernier numéro, mon cher Monsieur Varey, tous publicz, d'après le Figare, une dépêche de M. Edison,

« l'ai envoyé des microphones à M. Precce et à M. Hughes, il y u eav mois, et aussi des descriptions de cet appareil. Il y a abus de onfiance de la part de M. Hughes dans cette affaire. Attendez des

« M. Edison ne m'a jamais envoyé de microphones pas plus

pa'aucune lettre ou aucune communication.

> D'un autro côlé, M. Preces soutient qu'il n'a reçu de M. Edison aucune confidence à ce sujet.

l'édison aucune confidence à ce sujet.

Il y a curvier du cus mois M. Edison avait envoyé au PeséOfice, le dernier et, d'agrés lui, le meilleur excumplaire de sou
téciphone à charbon ; o'était public et jai vue ce téléphone qu' chait présenté par M. Adam, agent de M. Edison, à Loudres.
L'appareil était bien le mémo que celui qui avait été décrit dans tous les journaux. Il ressemble, comme forme, au téléphone du professeur Bell. Il fonctionne, comme on le sait, au moyen de la processour Den. Il fonctionne, comme on le san, au mojeta de la pression du diaphragme sur un bouton de charbon; seulement, il a besoin d'une bobine d'induction, et les résultats qu'il donne ne sont pas supériours à ceux obtenus avec le téléphone du profes-

sour Both.

» La réception du téléphone Edison est une copie exacte, et comme forme et comme principe, de celui de M. Bell, et le principe même est si identique que j'ai he conviction que la Société qui exploite l'invention de M. Bell n'aurait pas permis l'usage du téléphone à charbon de M. Edison. sour Boll.

un telephone a charbon de M. Eulson.

» Enfin, pour me résumer, la dépêche de M. Edison contient un mensonge évident, et il faut maintenant qu'il prouve qu'il ait été avec moi en relation directe ou indirecte.

» Quand on réfléchit un peu on doit bien penser que si M. Edison avait véritablement découvert le microphone il n'aurait pas manqué ou de prendre un brevet ou de publier des documents

THURSDAY, AUGUST 8, 1878

"The Windows of the Assistant Age of the Assistant Age was Even TER ROYALITY THOUGH To switch to Basic Age was the Assistant Age of the The Wisdom of the Antiests.

LE MICROPHONE

M. Hughes et M. Edison

Ainsi que nous nous y attendions, nous avons reçu une lettre de M. Hughes qui proteste, comme nos lecteurs vont en juger, de la façon la plus energique contre l'accusation de « piraterie » si intempestivement formulée par M. Edison. Voici la lettre de l'éminent inventeur de l'appareil télégraphique imprimeur :

Londres, 26 juin 1878.

« Mon cher Monsieur Varcy, • Je vois avec regret que M. Edison se croit le droit d'affir-vos avec regres que al. Louson se croti to troit d'ain-mer qu'il et aussi l'inventeur du microphone, et cela, même avant moi, simplement parce que, dans son téléphone, il fait usago de charbon de ocruues à gaz cé que, par les variations de pression d'un diaphragme sur le charbon, on opère une variation de

courant.

Le principe de mon microphone repose sur l'action moléculaire d'un conducteur quelconque placé sur du bois ou sur un corps résonnant capable de recevoir et de partager des vibrations et un courant. courant qui doit varier en rapport exact de force et de forme avec les vibrations moléculaires qui agissent sur le bois ou sur le corps résonnant.

copa retomant.

Dans lo microphono inventé par moi, il n'y a pas do diaphragmo
ni aneune variation de pression du diaphragmo sur le conducteur;
tous les métaux agissent, aussi bien que l'autre, à la condition
que leur surface ne soit jes avyorée. D'n, le paline, etc., donnent des résultats excellents, seulement j'ai préféré le charbon de cornues à gaz, parce qu'on peut se le procurer facilement et à

The English Mechanic AND

WORLD OF SCIENCE AND ART. PRIDAY, JULY 26, 1808.

CAN THE PHONOGRAPH RECORD BE

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EDISON'S HARMONIC ENGINE.

It the annexed illustration we give a representa-tion of the magnetic engine of Mr. Edison, which has been named "The Harmonia," for what reason is not stated. The details wary according to different reporters, but practically we presume, the outereas recorters, but practically we resume, the littermines are of little recome). The metable of the little recome. The metable of the little record is a little from the

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THE MICROPHONE RELAY.

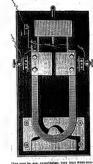
By Prof. Hown J. Hourrow and Minu Thomson, of the Philadelphia Central High School.

IMMEDIATELY after the announcement by Prof. Elli of his remarkable proposed for stringing the classic or the results of the proposed for the property of the control of the case of the c

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for it is without that the instrument can be used alter, may a chapter on a reparter, may be children, may be children as the control at once by a tolephone placed is said circulor on may be again reposted in a new of creat. By the means we believe that the distance to which a topolous means one believe that the distance to which a topolous means on the control of the man of the control of the man of the control of the man of the control of the man of the control of the man of the control of the man of the control of the man of the control of the man of the control of the man of the control of the man of the control of the man of the control of the man of the control of th

second story of a building facing a public thorough-fare, and the time of trial was shortly after mistay. The microphone, when properly constructed, has its greatest resultiveness when the piece of carbon pointed at both ends rusts in a nearly vertical posi-



they may be, are, accretioner, very look was con-pared with these width would be proceeded with the second of the control of the control of the photo. The may be obtained by proceeding with ways. The second of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-lor of the control of the control of the con-pared of the control of the control of the con-pared of the control of the control of the con-pared of the control of the control of the con-trol control of the control of the control of the control of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the con-

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teristic marking, to deter be still possible to deter-which has given rise to thei Edison has been repenting periments made in this co United States, and found sounds by which the iden-made were known beforel recognise them on the foil, number of times they peated, but he discovered impossible to recognise the by similar sounds when u other person. The indental other person. The indental to vary not only with differ also with the manner in w spoken; thus the share depends primarily on the but it is varied by the spet phonograph barrel is turned which the sound is uttered, if the speaker's month from instants I never we have very in the force. For instants I have a the everything the state of the control instants I have a the everything the state of the control instants. I have a the everything the state of the control instants I have been a state of the control in the control instants I have been a state of the control instants I have been a state of the control instants I have been a state of the control instants I have been a state of the control instants I have been a state of the control instants I have been a state of the control instants I have been a state of the control inst

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COURT.]—Microphons and Phonpscops.—The second transmission of the property of

New-York Daily Tribune.

FOUNDED BY HORACE GREELEY.

TUESDAY, AUGUST 13, 1878.

On another page will be found a letter from Mr. W. Fraser Rue, the English writer who accompanied Mr. Lockyer to this country to witness the oclipse of the sun. The letter is written from the natronomers' hendquarters in Colorado. It is not, however, a dry discussion of technical points, but rather a description of some of the incidents attending the observations, and a frank admission that much cannot be told respecting their actual results, because the conclusions of the observers seem so hopelessly at variance. Professor Watson's discovery of Vulcan seems to be freely admitted, and there is generous praise for Mr. Edison, who has taken his place among the scientists by a short cut. Nobody will be surprised, of course, to learn that the success of his micro-tasimeter has suggested to Mr. Edison the idea of a telescope to detect the presence of a star which even the eye of the telescope cannot see. The more definite results of the observation are certainly valuable in the highest degree, and, when they have been scrutinized and studied, the world will see that great progress has been made in astronomical knowledge.

WITH THE ASTRONOMERS.

LETTER FROM W. FRASER RAE. THE ASTRONOMERS AT LOGGERHEADS—SURVEY OF THE OBSERVING STATIONS—LIFE AND LAW IN WYOMING TRRESTORY-PROPERSOR WATSON AS DISCOVERED AND TRAVELLER-MR. EDISON'S

DESCOVERGE AND THATELET-SIL ADDOOR OF NEW PROJECT-THE ECLIPSE AS A WHOLE.

FROM AN OCCASIONAL CORENSPONDENT OF THE TRANSMAL DENYER, Col., Aug. 3.—The total celless of the aug., which has been the means of attracting our greatest scientific luminaries to the Rocky Memitains, was estimated to last 170 seconds. Never in the history of colipses have so much observing power and so many highly-trained intellects been brought to bear upon the phonomens presented by the ann when obscured by the moon. On this point there is perfect unmiliarity. I have conversed with the mentthe several places where the eclipse could be studied—from Pueble in the south to Creston in the studied—from Pueblo in the south to Creston in the north—and, while they differ materially in opinion, they are at one in admitting the theoroughness with which the work has been done. It is clear, however, that though the cellpsa is over the labors of the astrenumers are not at an end. They are only beginning to realize how little they know about phenor one with which they considered thomselves to be can write which they commerce transference to be familiar, and how much they differ as to questions which they fameied had breu actifed. Were it not that men of sciouce are supposed to be east in a finer much than mere men of letters, and to be exempt from the jealousies and rivation which have often created strife in the literary commonwealth, I should unbeditatingly affirm that the past colline of the sun will be productive of prolonged and embittered controversy.

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WITH THE ASTRONOMERS

LETTER FROM W. FRASER RAE. THE OBSERVING STATIONS-LIVE AND LAW IN

THE GENERATION STATIONS—HER AND LAW IN WOOMED TREETOR—THE PROPERSON WAYSON AS DESCOVERED AND THE PROPERSON WAYSON AS DESCOVERED AS A WIFELD THE PROPERSON WAS PRODUCED—THE RELEASE AS A WIFELD DENYER, CO. A. Aug. R.—The treet in the sen, which has been the means of attracting our greatest selectific luminary that the Ricky Montage and The Company of the Property of talna, was estimated to last 170 seconds. Never in the history of eclipses have an unch observing power and so many highly-trained intellects been brought and so many highly-trained intellects been brought to bear upon the phenomena presented by the sum-when obscured by the mose. On this point there is perfect unanolity. I have conversed with the near-hern of the obscring parties who were attained at the overliphees where the cellipse entitle is studied—from Purble in the south to Cresten in the studied—from Purble in the south to Cresten in the studied—from Pueblo in the south to Createn in the north—and, while they differ maternally in opinion they are at one in admitting the thoroughness with which the work has been done. It belear, however, that though the celline is over the labous of the artronomers are not at an end. They are only begin.

was intended that the several parties should 18 was intended that the several parties about most together at Denver and discoust in an astronomi-cal postention what they had seen and what they thought. This part of the programme could not be carried out. Some of the observers were unato arrive here immediately after the eclipse was over; others who did arrive have been unable to await the coming of their comrades in science. Yet there has been considerable interchange of Yet there has been considerable intercurance of views and impressions, both ornly and in writing, and many of the astronomers have not each other in this city, examined cost other's photographs, criticised each other's conclusions, and precitained that their differences on important questions are montal and irreconcilable. To-day, the majority have parted and proceeded to their homes, a few remaining bolind, among whom is Professor Watson, of the University of Michigan, who desires to add a further acquaintance with the grand ery of Colorado to the stores of his knowledge, and Professor Langley, of the Allegheny Observe tory, who is engaged in arranging for the transport homewards of the instruments which he used on the lefty summet of Pike's Peak. Pending the issue of the formal reports in which astronomers will embody their respective and divergent views, it may be interesting to summarize the results which have been obtained, and to set forth the points concerning which the war of controversy will rage. Before doing so, however, let me say a few words about the places where observations were made, and the principal men by whom they were conducted. Having visited most of the stations, I am pre-

pared to maintain that the most northerly one wore the hest chosen and the scenes of the most notable discoveries. These were Creaton, Separaline of the Union Pacific Railway. At one or other of them were to be found Professors Harkness. sweemb, Waison, Draper, Morten and Barker, Mr. Lockyer, of England, and Mr. Edison, of worldwide fame. It is no disparagoment to the observers elsewhere, many of whom are men of the highest acioutilic rank, to nesert that the strongest observing parties, were to be found at the places named above. Protessor Watson's discovery of the planet Vulcan has made not only himself but also Separation famous. In like manner Rawlins will be known hereafter, both as the place at which our most eminent astronomers studied the celipse and recorded results through the medium of photography, and as that where Mr. Edison first applied his intero-tasimeter to measure the heat of the stars, and actually succeeded in determining by measured it the temperature of the corons during the sun's

not, though these pages will be necessarily be fulfilled massive in many who move based of them till untractive to a digitative than they have been been a contract of the contract and the distribution flatter of a digitative than they have been. For every till the flat they are more and little move, and we will save hardy make be carried be some years to be will fare bothy make be carried be some years to be different to the contract of the c

largor Humber of miserable shantles for the sc modution of the poor Swedes and Irish who have made their homes here. The jail contains a prisoner who, on his own confession, has committed many who, on-his own confession, has committed many murhers—it is not assupessed, however, that he will, he executed, even though found gullry by a jury. I was told that his sentence would be imprisonment, for life, and thus soon after being sent to undergo it he would recain his freedom. He has nearly manhe would regain his froadon. He mas meanty man-aged to accept from jail already. If, instead of num-dering a fallow-creature, in had alolen a horse, the chance of his living long after capture would have been very small. Public opinion in Wyoming Terri-lary decrease death to horse-stealers. The ellisean theory of the company of the are of the same mind on this head as the Scuttish Judge Braxfield, of whom it is teld in Dean Ram-Judge Braxueld, or whom is stold in Dead Man-say's "Reminiscences", that, having to try a man for horse-stealing, and the jury having brought in a verdict of guilty, the Judge saked him whether be had anything to say in mitigation of sentence. The had anything to say in mitigation of sentence. The prisoner thereupon made a pathetic appeal and pro-teated that, though oppearance were against him, he was really insoccut. Itla Lordship, who was commonly known as "the banging judge," replied, "What you say, man, may be aw true; but ye'll be name the want o' a little hanging." In like manner, the man who is here accused or even ans preted of stealing herses, is deemed by the citizen to be none the worse for a little hanging, and they generally contrive to give effect to their convictions without putting the accused to the trouble of a trial, and without calling for the intervention of the officers of the law.

At present the citizens of Rawlins are specially abled in spirit about the best way in which to troubled in aptiti about the best way in which to deal with offenders of another kind, For, some months back their city has been the head-quarters of several gentlemen who have come here from the State of Maine with a determination to make money by heak or by and who have been very successful. The Carbon County News characterizes the business of these is dustrious and carrgette gentlemen as a method of making money without work, and stigmatizes their operations as the "Silver Mountain Mining Company Fraud." The system is to induce persons in the East to invest money in a company of that name; and to persuade them to pay assessments for the purpose of developbur the mine, and then, when no more money is forth coming, to leave them to console themselves for the loss of their dollars with the reflection that they have been duped. The "Silver Mountain Lode" is said to be "sumply a little patch of ground that no man in this country would pay the recording free for." Another concern is called the "Seminole Gold and Silver Mining Company." This one contends that its business differs from that of the other in being perfectly legitimate, and that there is no connection between the two. But The News maintains the two are identical, and that all the gold and all ver received by their representatives comes out of the porkets of confiding and eredulous persons throughout the country, and is conveyed to Rawlins by the mail. I was informed that stops will soon be

taken to bring the law to bear upon the deings of these goallenne. So, long as they continue their operations it is impossible to personal confidence to come forward with money for the development; of the minuted riches of this part of the Tgrittery. Perhapset may be sevreeable to your readers if 1 warm them against einstriking their funds in either of the mines manned above before making impulies on the spot and seeing the property with their own

This "Delimitation Years the "description and the "week probability of the control of the contro

Yet what was most notable at that lefty spot was the oclipse as a spectacle. Standing so high above the plains, the mere sightseer, as well as the man of science, was impressed by the extraordinary and awe-inspiring prospect of the moon's vast shadow sweeping over the region below him. That region is one of the most wonderful in this theatre of natu-ral marvels. Nowhere on the earth's surface is a piece of ground-to be seen bearing a clearer imp of Nature's occentric handlwork than that which is styled the Garden of the Gods. Indeed, the entire but one of the lefty beights, cannot easily be matched for variety of scenary and for grandour of outline and effect. Many astronomers paid a visit to Maniton after the celipse, and explored the sur-rounding places of interest. Among them were men who had seen all the notable mountains in India, Chian and Japan, France, Switzerland and Italy. Some of them traced a likeness between the Rocky Mountain Range and the Alps, as seen from Berne, the Apennines from more than one Italian city, the range stretching into Chipres Tartary, as seen from Pekin, and Pasyana, the great mountain of Japan, but none of them could deny that, as a whole, the grand backbone of the continent differs from and surpasses my other mountain chain, and yields to the llimalayas alone in majesty and vartness. The view of the moun-tains is almost equalled in impressiveness by the sight of the canyons which intersect them. One of the many views of the kind is obtained during a which is a narrow-gange one, winds up the canyor like a long drawn out and sinuous serpent. Now and then the rocks rise sheer up on either hand to the height of many hundred feet. By the time long way up the mountain side, and it seems as if it were impossible for the cars to attain such an alti-tude. However, by riganging backwards and for wards, the elevation is reached, and the train stope in due course at Control City. This is largely composed of miners, who have left the impoverished lestes of their native Cornwall to find minera loses of their native Cornwpil to find mineral wealth in another and more favored man. They have preserved recentlingly. The population num-served man and the property of the property seems of the property of the property of 2000,000. However, the failure here have been even more abundant than the suc-dern the valley from Central City to Island Springs abandoms inhere can be caused by the heart be-lug holes in the ground from which call-ing of raise som be extracted. Here and there, a many famility at wey, known for with the layes? memory or test making." A big strices was verying the critic of he still gas strices and the still gas strices are strices and the values related in regions. These presents were gas strices as stall to the debilitation. These mineral variety are still to the debilitation. These mineral variety are not to the debilitation of the strices are strices as the strices are strices as the strices are strices as the strices are strices as the strices are strices as the strices are strices as the strices are strices as the strices are strices are strices are strices. The strices are strices are strices are strices are strices are strices are strices are strices are strices. The strices are strices are strices are strices are strices are strices are strices are strices are strices are strices are strices are strices. The strices are strices are strices are strices are strices are strices are strices are strices are strices are strices are strices are strices are strices are strices are strices are strices. The strices are strices are strices are strices are strices are strices are strices are strices are strices are strices are strices. The strices are strices are strices are strices are strices are strices are strices are strices. The strices are strices are strices are strices are strices are strices are strices are strices. The strices are strices are strices are strices are strices are strices are strices are strices. The strices are strices are strices are strices are strices are strices are strices are strices. The strices are strices are strices are strices are strices are strices are strices are strices are strices are strices. The strices are

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The Morld.

NEW YORK, WEDNESDAY, AUGUST 14, 1878

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THE INVENTION OF THE MICROPHONE.

THE NEW YORK THE MICROPHONE.

THE New York Daily Tribute of June 27 contains the following repy of Mr. Edition to the joint telegram of Mr. W. II. Prece and Prof. Highest categorically desirys the prizery of intention which July Edition imputed to them. This sets of the profit in the desired in our laws for July 10 is necessary the proofs of his case.

To the Edition of the Tribute of the Prof. To the Edition of the Tribute Offset of th

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To the Editor of the Tribut,

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Six—In regift the pincy by the latter of my
support (sephone, as contained in your paper of this
date, allow me to refute their statements by their
own words, and by extracts from the English
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"I emphatically indorse every word of the above message.

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From The Engineer, May 71, 1935

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This paper was mailed to Mr. Precee April 20, 1878, and I prove that he received it by quoting from the same article the following:

"The phonograph will preserve the exact pro-sunciation. The President of the Philological

The Morld.

NEW YORK, WEDNESDAY, AUGUST 14, 1878

AWARDS AT PARIS TO AMBRICANS. Pane, August 13.—The awards of the interes-tional fary have not jet been published but a con-siderable number of the successful, competitors, are we. The American exhibitors have note than a petitizate share of nodel and thing sweet, than a petitizate share of nodel and things sweet, so our the successful American exhibits, see, Mo-nick's resper, Westint's steam-angles, Wood's per, Eduan's telephone, Whether & Wilson's Ecisio's telephone. Whoese, on machine, the American Watch , Fairbank's scales the Collins' rettr's sawa Wilcox's last Yarm ill. Jakesion's harvester, Pallins

August 1, 1878.]

the Company's property

Telephone patentees of the fruits of may

labour and study, and begging that the sal may be referred to a select committee when

examine the question at issue. This are

been taken by reason of Clause 3 in to

Telegraphs' Bill. By that clause it is propose! in the construction of the Telegraph Att of the term "telegraph" shall in addition

meaning assigned to it by that Act, includ-"apparatus for transmitting messages or other

munications with the aid of electricity, many

or any other like agency." It is clear that this covers the telephone, and the Telephone Co

are reasonably afraid that the Government ma

will appropriate their inventions and shut the from their own use of it. In their own week

"apprehend that the introduction of the 3rd into the now pending Bill has been designed;

by the Post Office, for the express purpo

obtaining a monopoly of so much of the Co

business, as would be in competition with the Office Telegraphs," and "that the effect of the

clephone Company clephone Company clear that the Government monopoly will not fear that the clear accord them insufficient compensation

An annex to the petition sets forth the aims

scope of the Telephone Company, who at go expense have purchased Professor Bell's par Telephonic lines," says this document, "might

instance be erected between the Temple, or

various Inns, and Westminster, for the bentle

barristers and solicitors frequenting the differ

ing the telephone, wi

prohibiting your petitis

present exists whereb

rom postal telephone lin mpany, and it is feared

one* communication of ent between the Con

THE TELEGRAPHIC JOURNAL.

I quote from the Journal of the Telegraph, April 16,

- 307

Society means to travel with it amongst all the North American tribes," To set at rest the claims of Hughes on this subject, I quote from a letter received by me a short time since from Professor Langley, the eminent

" Allegheny Observatory, June 4, 1878. "Allegheny Observatory, June 4, 1878.
"In response to your inquire, I may state that to the best of my recollection, in October, 1877, at Gow Laboratory, Menle Park, om ny telling you that an instrument more sensitive to radiant heet than the bismuth-antimory-linear pilew sat selered by an officert in the signature of the spectrum, you suggested the use of exthon, of which remove the processor of the processor of the processor of the processor of the processor of the processor of the deap you gave me was that the common small thermosile was explained of developing I remember the idea you gave me was that the common small thermopile was capable of developing little energy, the variation of resistance calon from a more than the variation of resistance calon from a root the energy of a battery of any size, and thus multiply the sensitiveness of the pile almost without limit."

Mr. Preece, in his card, says: "His (Hughes's) microphone is quite a different estrument to Edison's telephone."

Hughes, in his original paper of May 8, 1878, after summing up the labours of others, says: "It will be seen, however, that in the experiments "It will he seen, however, that in the experiments made by myself the diaphragm has been altogether discarded, resting as it does upon the changes produced by molecular action, and that the variation in the strengths of the current flowing are produced in the strengths of the current flowing are produced."

simply and solely by the direct effect of its sonorous vibrations." I quote from the Journal of the Telegraph, April 16, 1878 (to which paper Mr. Preece is a subscriber) an article taken from the proof-sheets of Mr. Prescott's book on the telephone and phonograph, which reads

"In the latest form of transmitter which Mr. Edison has introduced the vibrating diaphragm is done away with altogether."

From this book which is now published, I quote from page 226 : "I (Edison) discovered that my principle, unlike all "I (Edison) discovered that my principle, unince all require any vibration of the displaraga. That, in "feet, sound waves could be transformed into electrical pulsations without the movement of any intervening mechanism."

This statement by myself for publication in Mr. Prescott's book was written over four months

I quote from a letter from Preece to myself, date London, May 23rd, 1878 :

"Hughes's doings border very closely upon yours, and it is difficult to distinguish between what you have done and what he has done."

Again, Mr. Hughes, after describing a number of experiments, sums up and says; "Carbon is used in preference to any other material. It is quite evident that these effects are due to a difference of pressure at the different points of contact."

"By constant experimenting, Mr. Edison at length

made the discovery, that when properly prepared, earlier possessed the remarkable property of chang-ing its resistance with pressure, and that the ratios of these changes, moreover corresponded exactly with the pressure

The same discovery was published in the Scientific American of July 17, 1877, Harper's Magazine, and many other papers, both in this and other countries. I quote an extract from a letter addressed to Sir H. Thompson, the eminent surgeon, a copy of which was kindly sent me by the writer: "Hotel Chatham, Paris, June 7, 1878.

and in some details with that brought forward by

(Signed) "WM. THOMSON." Finally, Mr. Process had ample knowledge, through my correspondence, with him, of all 1 have been dising since he left. America, and had my telephone in his possession at least a month before the alleged discover by Plughes, and it is almost impossible to attribute his failure to defend me (as he was to do a pagnata the priety of legal, his most understanding the processing of the proces

Mr. Preece says in his eard of yesterday

"I am in no way whatever a coadjutor of Hughes." I quote from Hughes's original paper announcing his alleged discovery:

"My warmest thanks are due to Mr. W. H. Preece. electrician of the Post Office, for his appreciation of the importance of the facts I have stated, and for his kind council indeed in the preparation of this

has a more a commentation of the commentation of the Commentation where it would be at once known, and in which country it has been patented nearly a year.

Yours truly, Tuomas A. Emson.

Menlo Park, N.J., June 26, 1878. Memo 1245, N.J., jume 20, 1878.
We have listed desire to harp upon this most regretable affair, but the above communication provoker a few remarks. To any person unscinninted with the true nature and platen and the two inventions, the carbon care perhaps the microphone. Afr. Industry of the provided and seeming, and seeming, and seeming, answer of the dulty necessaries with a provided the provided and seeming, and seeming answer of the dulty necessaries which are perhaps the provided that the provided and seeming a makes of the dulty necessaries which are perhaps the provided that the provided and seeming a makes of the dulty necessaries which are provided to the provided that the provid satisfy many readers of the daily newspaper in which they appear; but they are altogether too unsub-

wheel, so that to obtain two successive letter impres-

needs to dollife finish the onlines has soon a gra-uccess, that it will ryade results which cannot it o provo of general stillife as well as of selent interest, and that no seconder of the soveral expe-ions will look back increased resings of admi-tions of the context of the context of the most of the context, and of astalegation that he is share, however is unable, in an over measurable to versaling. W. Frassers Raw

The Morio.

NEW YORE, WEDNESDAY, AUGUST 14, 1878.

AWARDS AT PARIS TO AMBRICANS. AWARDS AT PARIS TO AMBRIOARS,
TAMA, Aquest IA.—The service of the informaficus large IA.—The service of the informaficus large IA.—The service of the informaficus large IA.—The service of the informadefended manufact the service information of the inproportion of the service of the information of the inproportion of the information of the in install and appetical to weigh with scientific men.

Mr. Belion presents his proch as if the microplones.

Mr. Belion presents his proch as if the microplones, whereas the present in the carbon explones, whereas the present in the present process of the present process of the present process.

Process of the present process of the present process and it is the explorate under a new mode in eith, and it is the explorate under a new mode in eith, and it is the cipie, not the carbon telephone. But even if this work of the present weight of the present was anticipated by Mr. Company of the present was anticipated by Mr. Company of the present was anticipated by Mr. Company of the present was anticipated by Mr. Company of the present was anticipated by Mr. Company of the present was anticipated by Mr. Company of the present from a present the present from a present the present from a position in Mr. Editions reply is the extent from a but partial extracts are always unantifactory, and more the justice considered without heter contexts. William, it, we suspect, our old friend the carbon carbon and present the energy of the voice or other sounds may be appreciated. It is allowed the energy of the voice or other sounds may be appreciated. the energy of the voice or other tousish may be appelled. It is almost needests to plot out flow-applied. It is almost needests to plot out flow-applied the plot of the plot reply. The importance given to the "thermopile," or "thermoscope," as it would be better named, by a contemporary, has apparently helped to mislead him into the belief that his authorship of the carbon into the belief that his authorship of the carbon telephone was endangered. It is time, however, that Mr. Edison should correct himself, and after the hot and hasty aspersions which he has launched upon the fair fame of two unoffending gentlemen, it will be to his own credit if he frankly acknowledges it will be to his own credit if he frankly acknowledges his mistake. Mr. Edison has many friends in England who admire his inventive abilites, as well as the independent manner in which he has risen, and who will feel sincero regret if he does not make that amends, and reinstate himself in their

AN IMPROVED MORSE INSTRUMENT.

THE new Morse receiving instrument of MM. de Sustex and Brasseur, of Brussels, possesses some notable improvements over the older forms. In the ordinary Morse apparatus, as is well-known, the disc or blade, by which the marks are made upon a travelling strip of upper, is carried by a lever, which is faced to the armature of an electromagnet, the coils of which are connected to the line magnet, the coits of which are connected to the mee
wire. The armature is ordinarily held apart from
the magnet by a light spring; but when a current
from the line wire passes through the coils of the
magnet the armature is drawn towards the magnet,

nd the printing disc or blade is brought again and the printing disc of blade is invoget against the paper. In the new Morse the light spring is discarded, and in its stead a magnetic arrangement is substituted. This consists in placing on the obsorite side of the armature, and near to it the bels of two soft iron cores, similar to the cores of b electro-inagnet. The opposite ends of these cas are coupled together by a permanent horse-tipe magnet. This magnet, acting through the dri iron cores, attracts the armature and holds it vay from the electro-magnet. The soft iron cores are surrounded by fine wire coils, similar to the slot of the electro-magnet, and the currents from is of the electro-insigner, and the cortes from rrent passes from the lines through these bobbin electro-magnet attracts the armature downwards ile at the same time the poles of the upper coils reversed, and repel the armature, which is chly magnetic, downwards, thus assisting the ectro-magnets. The resistance of the bobbins is arranged as to give the maximum power for a

CAUGUST 1 15-2

Figures P and 2 represent a side and an end view f the essential parts of this apparatus.

A is the permanent magnet, the power of which
an be increased or diminished by sliding across it

he soft iron regulator R.

B and B' are the upper and lower bobbins. is a frame of copper for supporting the cores
of the two upper bobbins and the permanent

T is a bar of soft iron supporting the lower pair of bobbins and connecting their cords.

P is the soft iron armature, feebly magnetic, for

P is the soft from armature, feetly magnetic, for clusting the printing lever.

a, figure 2, is the south pole of the magnet A.

b is the north pole of the magnet A.

a' is the south pole of the cores of the lower sobbins when a current is passing.

N is a portion of the brass frame of the instru-

The current from the line o, passes to earth E

into the several wire coils to s, magnetises and into several wire coils to s, magnetises and into several sev he permanent magnet are reversed, a becoming a north pole, and \$ a nouth pole, and \$ a nouth pole, are residual magnetism, remains a north pole at the end \$ and a south pole at \$ and \$ and a south pole at \$ and

The main advantage of this form of construction

The main advantage of this form of construction is the increased sensitiveness of the armature to line currents; and MM, de Stasex and Hexaser also apply the same principels to relays for long lines. In life, a Morse of this description is in this particular to the sense of the construction of the constru centimetres high, give correct marking through 30,000 ohms. It is also worthy of mention that a bare copper wire, a kilometre long, laid along the

wheel, so that to obtain two successive letter impres-sions, it is necessary for the printing shaft to make at least one whole revolution. Now, for this revo-lution, is needed a time equal to that occupied by the contact maker of the transmitter in passing over four contacts. M. Obten, thinking this time much to great, has sought to reduce it by one-half, by allowing two impressions to be recorded by the printing shaft instead of one; and to this end he printing shalt instead of one; and to this end ne has applied two printing cams to the shaft; but that these cams might act independently when re-quired, by the position of the successive letter transmitted, he found it necessary to arrange the printing lever, upon which they impinge, so as to be capable of lateral displacement; and he also had to separate them one from the other, by a space equal to one-fitteenth of the periphery of the type-wheel. to one-fifteenth of the periphery of the type-wince.

On the other hand, as in so short an interval the
correcting cam could not exert its function upon a
correcting wheel disposed in the ordinary way. M.
Olsen has reduced, by one-half, the number of
teeth upon the latter, so that an interval between two teeth instead of corresponding to one letter, as in the Hughes' System, corresponds to two letters, and the interval between the two cams on the printing shaft exactly corresponds to that between brought into action at will, according to the letter to be printed, M. Olsen binds the fork of the printing lever by a small bridle fitted to the detent shaft of the printing mechanism, the fork itself being centred; and accordingly as the detent shaft turns to the right or left, that is to say, according to the direction of the current transmitted, it presents the tip of the ork to one or other of the cams, which then acts as in the ordinary Hughes. At the same time that this action is taking place, a level-wheel gearing turns a vertical shaft which carries the correcting cam, vertical shaft which carries the correcting cam, which is in form of a helix, and which effects the re-adjustment. It is this vertical shaft, furnished at its upper portion with a toothed sector very finely gearing into a wheel of the first clock-work, which connects the two motor mechanisms during the time of impression and correction. In order that the line may present equal charges of positive and negative, a small friction commutator is put in action by the two electro-magnet armatures, and sends into the line after the apparatus is set in action, currents which are contrary to those transmitted, and which are of longer or shorter duration accordingly as the signalling currents are in one or the other direction. signalling currents are in one or the other direction. The transmitter, instead of being circular, as in the Hughes system, is longitudinal, and is placed underneath the apparatus, immediately behind the finger-keys. It is, in fact, a horizontal arbor, far-nished with cams arranged to as to form a helix, and the system of and separated by spaces precisely corresponding to the spaces between the letters on the type-wheel

the spaces between the letters on the types using lit is also driven by the same discovered by the lit is also driven by the same discovered by the spaints counted pieces thrown consists of the cams against counted pieces thrown out by the lexy, furnishes at the required times the closing of the circuit necessary to the transmission of spain-cretical processary to the transmission of spain-ties of the control of the control of the between the interruptors and the line is made in a preverse manner for each key, and in order that these combinations may adapt themsetres to both sensing. ombinations may adapt themselves to both sending ad receiving, they are made to originate in a

reversing commutator which is fixed on the back reversing commutator which is axed on into back plate of the instrument and works automatically. This disposition of the commutator is really very ingonious, for its movements are controlled without any effort on the part of the employé, and by the very operations which he is obliged to perform to very operations which he is obliged to perform to set his instrument for sending or receiving. In fact, when sending he has to press down the "blank" pedal, and from the depression of this pedal results a movement of the commutator which places it in position for transmitting. On the other hand, to receive he has to press down the "blank" letter key, and from this alone the commutator changes

The property of the property o

is further provided with special context for dupler vorticing and the mechanism for attendite transmission, it is very simple; it somewhat reasonities that the first Wheatstone automate More yestem. Too, which was the provided the second to that if the perfensive has purposed the same in most behavior requiring requires currents, and these on the right to the other level supplements of the the right to the other level supplements of the control of the requirement of the control of the perfensive control of the requirement of the con-trol of the requirement of the requirement of which, being purpose thereing to do mystling, but the requirement of the requirement of the requirement perse above the key. With 3 x-100, and the requirement that opposed a message by the ordinary Hughes. As we have said he do not with a requirement of the Ax we have said he do not with a requirement of the letter-intervals, it is possible to effect size expected of three control of the requirement of the requirement of the letter-intervals, it is possible to effect size expected of the control of the requirement of the requirement of the letter-intervals, it is possible to effect size expected of the control of the requirement of the requirement of the letter-intervals, it is possible to effect size of the letter-intervals, it is possible to effect size of the letter-intervals, it is possible to effect the requirement of the letter-intervals, it is possible to effect size of the control of the requirement of the letter-intervals, it is possible to the control of the requirement of the requirement of the requirement of the letter-intervals, it is possible to effect and requirement of the letter-intervals, it is possible to the requirement of the letter-intervals, it is possible to the requirement of the letter-intervals, it is possible to effect and requirement of the letter-intervals, it is possible to the requirement of the letter-intervals, it is possible to the requirement of the letter-intervals, it is possible to the requirement of the letter-intervals, it is possible to the requirement of the letter-intervals, it is possible to the requirement of the letter-intervals, it is not the letter of the letter-intervals.

O, P and S, figure-biank and T, figure-mank and V, Z and A.
In spite of its delicate and complicated parts, this apparatus has been found to work well, and his apparatus has been the admiration of all who have seen it working automatically in the Exhibition.

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NEW MICROPHONES.

To the Editor of THE TELEGRAPHIC JOURNAL.

Siz.-I have for some time thought that the true

basis for a microphone for speaking was a tympanum-

covered box, similar to those joined by a thread, and used as the so-called "Toy Telephone." These instru-

ments speak clearly and audibly—the vibration of one

tympanum vibrating the other at the opposite end of

tympassum viorasing and other at the opposite end of the string, and reproducing the sounds which influenced

The Tolorid NEW YORK, WEDNESDAY, AUGUST 14

THE TELEGRAPHIC JOURNAL

FAUGUST 1, 1878.

inside—is hinged to a slide below, which gives a power a sketch, should you think it worth inserting), in which

of adjusting it, and is kept pressed slightly against the or adjusting it, and to kept prosent anguly against the pencil graphite edge by a very light steel spring, which pencii grapinio euge of a very agai seco spring, which (as shown) is also adjustable. This is of course designed solely for speaking, in which a considerable stability, combined with great elasticity, both in tension and pressure, are required. For very delicate experiments I have designed a form (of which I also send you both friction and contact are reduced to an absolute minimum. This, when vertical and nicely balanced, is



it. I therefore argued, that if all conditions were equalized, and a Hughes's Microphone, or carbon "wave-producing" arrangement, were placed in connection with the surface of the parchment tympanum, it should communicate as clearly through a distant Bell Telephone, and at the same time proportionately

This I have found to be so, and have designed a form of microphone-quite novel, I believe-of which I send you a sketch. It gives results that will, I think amply repay the extra trouble of its manufacture, reproducing in a distant Bell Telephone every word PERFECTLY UNHISTAKABLE, and CONSIDERABLY louder than originally spoken to it.

The above sketch needs little description. On the centre of the outer surface of the tympanum is fastened (with gum) a small triangular bit of " pencil graphite," having a fine wire attached to the circuit. Immediately above this a small ring is fastened through the tympanum to a very small shield at the back, and to the ring is attached a small spiral spring, or better, a fine india-rubber band, with screw adjustment (as shown), in order to obtain the forward tension on the tympanum (as produced by the "sag" of the thread in the "Toy Telephone"). The upright carbon-which is of the ordinary gas graphite, cut to a knife edge on the

monderfully sensitive-not only the noise of the fly walking, but that of his touching a pane of glass with his tongue, or sucking a grain of sugar-is DISTINCTLY audible in the telephone.

> Yours, &c., A. M. VEREXER.

In the figure representing microphone for delicate experiments, a, is the upper support of gas graphite; n, peg-top shaped vibrator of same; c, wooden block through which p slides for adjustment; p, a pend graphite point on which a rests; E, F, wires to batter and telephone. Both drawings are made half full sist

astonished the so before the public.

THE TELEGRAPHIC IOURNAL.

THE POLYSCOPE

AUGUST 1, 1878.]

M. Trouvé has recently presented to the Societé de M. Thouvé has recently presented to the Sacirde Physique a new apparatus, named the Polyscope, designed to illuminate the cavities of the human body, the laterior of mines, powder milk and market and the sacing the sa

The quantity of heat disengaged in unit time in a homogeneous metal wire traversed by a voltate current is proportional set to the resistance that the wire opposes to the passage of the electricity, and, and, to the square of the intensity of the currents.

This property of the voltaic current of white this property of the volume curied of white-heating metallic conductors in traversing them, has been utilised in chirurgery by John Marschall about 1851, by Leroy d'Etioles in 1853, Mideldorpf in 1854, and Broca in 1856, &c. It was only at a later



and totophone. Both drawings are more nais now—

the companies of the comp

intense for the practical application of the method-Recourse was had to a circulation of water to Recourse was had to a circulation of varier to annihilate the heat in proportion to its production, but the appractus then became too volunimous and difficult of management for practical use. M. Trouvé, convinced of the practical importance of such a system of lighting, has devoided himself constantly to the subject since 1870. These rescribes have been completely successful, and the success is due, as he himself has admitted, to himself section of the secondary battery of 3 M. Gasten solution of the secondary battery of 3 M. Gasten

selection of the secondary lattery of M. Usster The apparatus of M. Torus's composed of a The apparatus of M. Torus's composed of a Planta secondary lattery, with an arrangement for engalisting at will the flow of the engrees from it. Planta secondary lattery, with an arrangement of engalisting at will the flow of the composed for a policity, and by the adultion of a garbaneous for a poli-tic of the composed of the composed of the com-posed of the composed of the composed of the of the correct, and know there for the com-posed of the correct, and know there for the com-ton of the correct, and know there for the con-tactory, know that it can be completely azimilized to a hydrogeneous fear-own of the composed of the content of the composed of the composed of the con-tactory, know that it can be completely azimilized to a hydrogeneous fear-own of the content of the con-tactory, know that it can be completely azimilized on a hydrogeneous fear-own. The measure of the conour readers, who are familiar worth the Secondary of the an alyteriate in exercise. The rheetsta on the accordary battery, plays the same part of the secondary battery
In connexion with this subject we may mention that Mr. Edison proposes to enclose a tiny electric light in a glass bolus, small enough to be smallowed, for the purpose of illuminating the stomach, and exhibiting the process of digestion.

MEW YORK, WEDNESDAY, AUGUST 14

AWARDS AT PARIS TO AMBRICAN.
PAGE, August 13,-The awards of the in Expai for here not jot been published being siderable number of the successful, competition known. The American exhibitors have more properticals share of models, and other as American successful, American publishess.

THE TELEGRAPHIC JOURNAL

[August 1, 1878.

THE TELEGR

PHIC JOURNAL

EDISON'S MICRO-TASIMETER.

THE latest of Edison's inventions, and perhaps the

The latest of Edison's inventions, and perhaps the most interesting to physicists, is his micro-tasimeter, or measurer of infinitesimal pressure.

The thermopile, hitherto foremost among delicate indicators of changes of temperature, must now be consigned to the rear ranks, and the radiometer. which exhibits the motive power of the most subtile of forces, must retire in favour of an instrument that can weigh that force.

batton, and this discovery opened the way for the strip of the substance to be tested is put under a invention of this new and wonderful instrument. Small initial pressure, which deflects the garban-function of the new and the substance of the

August 1, 1878.7

heat of the hand, and a strip of gelatin, placed in the Instrument, is instantly expanded by moisture from a dampened piece of paper held two or three inches away.

For these experiments the instrument is arranged

as in fig 2, but for more delicate operations it is connected with a Thomson's reflecting galvanometer, and the current is regulated by a Wheatstone's bridge and a rheostat, so that the resistance on both sides of the galvanometer is equal, and the light-pencil from is the reflector fails on o of the scale. The principle of this arrangement is illustrated by the diagram, ofig. 4. Here the galvanometer is at g, and the instrument which is at l is adjusted, say, for example, to ten others resistance. At a, A, and c, the resistance. nee is the same. An increase or diminution of the ance is the same. An increase ordinalition of the pressure on the carbon button by an infinitesimal expansion or contraction of the substance under test is indicated on the scale of the galvanometer.

is indicated on the scale of the galvanometer.

The carbon button may be compared to a valve,
for, when it is compressed in the slightest degree,
like electrical conductivity is increased, and when it
is allowed to expand it partly loses its conducting

The heat from the hand, held 6 or 8 inches from I the next from the hand, held 6 or 8 inches from at strip of vuelenite placed in the instrument—when arranged as last described—is sufficient to deflect the galvanometer mirror to as to throw the light-beam completely off the scale. A cold body placed pear the vuleante strip will carry the light-beam in the opposite direction.

3 Pressure that is insurescible and indicators.

Pressure that is inappreciable and undiscover-able by other means is distinctly indicated by this

By ROBERT SABINE.

is of annealed selenium, some of which were of anneases sesentum, some of water were ed, when in the amorphous state, with platinum The selenium was made in the form of plates with. The sclenius was made in the form of places and the control of the control o'l centim. thick, o'5 to 1 centim. bro

schemids anterea managements are pitch.

A pate of schemium nuncicled at 170° C. was provided with four platinum wires, imbedded in it at different points, or centim, apart. The resistances were refeasing with + and — currents, and the means assumed to be sufficiently near for the

·			111	of several of	Resistan	on of a	eletium
i,	the	sc	parat	e culculated i	csista	nces a	re:-
	the	so	mea.	surements, b	y the	well	know
	3	,,		172	10		
	1	,,	3	174	29		

Measured resistance 31 megohms. 162 ,.

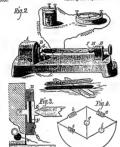
. 9'5 megohms 152 meghoms. This is an instance of high selenium resistance in This is an instance of high selectium resistance in an entitled and low resistance towards the ends in an otherwise apparently homogeneous plate, and of low junction resistances. The two junctions were made at the same time, in the same manner, by melting the selectium upon the wires; and yet one of them has nearly twenty times the resistance of

the other.

A second plate of selenium, provided with six platinum wires and annealed at 150° C, was measured with + and — currents in the same way, mean values being taken. This gave the following

Junctio	100				stance of putien.	bett	tance of seletics reen junctions.
2			٠	429	megohms	1 22	megohms.
3	٠			479		1 13	,,
4	٠		٠	498		1 0	
Ś	٠	٠		428	**	3	

In this plate, therefore, nearly all the resistance



The micro-tasimeter is the outcome of Professor Edison's experiments with his carbon telephone. Having experimented with diaphragms of various thicknesses, he ascertained that the best results thicknesses, ho ascertained that the best results were secured by using the thickness disphragms. At this stage he experienced a new difficulty. So sensitive was the carbon button to the changes of condition, that the expansion of the rubber telephone handle rendered the instrument instriculate, and finally inoperative. Iron handles were substituted with a similar result, but with the additional variety of the strength of the processor dispars attributes to the necessity of the processor dispars attributes to the necessary to the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of the processor dispars attributes to the necessary of t audible in the receiving instrument. These sounds molecules of iron among themselves during expan-sion. He calls them "molecular music." To avoid these disturbances in the telephone, the handle was dispensed with; but it had done a great service in revealing the extreme sensitiveness of the earbor

* We are indebted to Mr. Edison for the blocks wherewith to

See 1. 57

resulting from the expansion of the object acts with the control of the control of the object acts with the control of the con whatever material is employed to operate the

instrument instrument. The post is, a bout four incident from the ref.

The post is, a bout four incident from the ref.

The post is, a bout four incident from the ref.

The post is a complete from the ref.

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AWARDS AT PARIS TO AMSRICANS
PARIS, August 18.—The awards of the inEccal jury have not jet been published 'bit a

ng machine, the American best. Faithean's scotta. Co Directa's sawa, Wilcox's la drill, Jakasion's 'harverte, Etmington's 'ride's'. Spec and wheat receive gold med

Junction number.			Resistance of junction.	Resistance of selenium between junctions.		
2			'0333 meghom3	0.1914 megohm		
3			*0553 #	0.1012		
4			°0328 " {	0'1233 #		
Ş	٠	٠	'0199 "	0.1091 "		

It is clear from these measurements that a large portion of the observed resistance of a so-cal selenium resistance may, and frequently does, reside in the junctions and not in the selenium. Therefore the larger we make the service of contact between the platinum and the selenium, the less likely are we the platinum and the scientum, the less neerly are we to find an otherwise sensitive piece of scientum rendered comparatively insensitive by the intro-duction of high junction resistance. In this respect the form of selenium plate designed by Dr. Werner Siemens, in which the platinum wires form gratings or interiving spirals, is unquestionably the best form

or intertying aposition to employ when the object in viscosition to the high sensitiveness to light.

The author next describes some experiments by the author next describes some experiments by the author next describes some experiments of temperature of temper selenium are both affected by variations of temperature in nearly an equal ratio.

Resistance of Selenium altered by the inversion of the Current

The fact that the current strength in the circuit of a bar of selenium and a battery is subject to change when the direction of the current is reversed change when the direction of the currient is reversed has been pointed out by Professor Adams and Mr. Day. The inquiry naturally occurs whether the seat of the change is in the selenium or at the junctions. To determine this, it is only necessary to accratin the resistance of the junctions and of the selenium separately with two different battery powers to lind which agrees best in the two negsurements

A plate of selenium, with four wires, a, b, c, and d, imbedded in it, was inserted in a Wheatstone bridge with an intervening commutator, so that the selenium could be inverted whilst the other memselenium could be inverted whilst the other mem-bers of the bridge remain unaltered. The side of the bridge containing the selenium was also fur-nished with a reflecting galaxonometer of compara-tively low resistance, by means of which the current moving in that side could, within a very small percentage of error, be observed. The batterycircuit was provided with a sliding resistance, by means of which, whichever section of the selection means of which, whenever section of the seemond plate was in circuit, the current in it, as indicated by the galvanometer, could be kept at a constant value. In this way the following measurements were made:—In the first series the current strength in the selenium was kept uniformly at 22 microwebers, and in the second at 0.42 microweber. The positions of the selenium are indicated as "direct" and "inverted."

Resistance	Current	- 1 9 microw.	Current - 0'41		
a and b	18rect. pag. '3176 '3864 '2734	Inverted, meg. '3181 '3858 '2734	Direct. meg. '3202 '3936 '2747	Ti-	
	.6095	16097	.6116		
3 . 5	.4843	:4846	.4906		

when the current is direct inverted; the name M. Schnerberli is engaged in causing a telephone.

Current wo'at Corrent to 10g direct inverted 100.12 101 direct 11756

probable that in them, and not in the selenium, lie phone might also be employed as a micro-seise the change in question

(To be continued,)

Motes.

That TRATESTONE—Professor Dollars has recently if shown how easily fields can be for executing a thright. Cantery, constructs a special inferaphone by speaking telephone. A drop of water inserted betwee shalling a benizonal spinder of enthem against the grant of the contract of the con THE TELEPHONE,-Professor Dolbear has recently

larent connected to line, so that the current passes through
the water, the sound waves implinging on one dialong plane oscillate the resistance of the water, and a
long plane of the water and a
long plane of the water and a '611 phragm be of iron, and the other of zinc, a feeble cur-490 rent is generated in the telephone itself. This telephone and only acts as a transmitter as at present constructed.

August 1, 1878.7

current is increased; the relatance from a spit higherwork the primary wire of an looketine coil, while \$\frac{d}{d}\$ uncertainty of the relatance from the primary wire of an looketine coil, while \$\frac{d}{d}\$ uncertainty is a feature with a stephene. By the relatance is the primary is a feature with a stephene from the punction reto themself of \$\frac{d}{d}\$ uncertainty is the clear where the latest interest of \$\frac{d}{d}\$ we obtain a tracted; \$\frac{d}{d}\$ we obtain a work of the telephone in closed by the hand reto the latest interest of \$\frac{d}{d}\$ we obtain a second of the telephone in closed by the hand reto the verse \$\hat{d}\$, \$\frac{d}{d}\$ and \$\frac{d}{d}\$ with the consideration of \$\frac{d}{d}\$ we wise \$\hat{d}\$, \$\frac{d}{d}\$ and \$\frac{d}{d}\$ is the telephone and then \$\hat{d}\$ to the primary which causes the second of the principles as well as that of the second of the principles as well as that of the second of the principles as well as that of the second of the principles and the second of the principles and the second of the principles and the second of the principles and the second of the principles and the second of the principles and the second of the principles and the second of the principles and the second of the principles and the second of the principles and the second of the principles and the second of the principles and the second of the principles and the second of the principles and the principles and the principles and the principles and the principles and the principles and the principles and the principles are the principles and the principles are the principles and the principles are the principles and the principles are the principles and the principles are the principles and the principles are the principles and the principles are the principles are the principles are the principles are the principles are the principles are the principles are the principles are the principles are the principles are the principles are the principles are the principles are the principles a

Of THE Bell telephone was employed at the Wimbledon Camp, under the direction of Mr. T. Fletcher, electriclan to the Telephone Company, in communicating between the markemen and targets

the first state of the first sta o pugne migra 1810 be employed as a nucro-telemograph.

Afrepse of this subject, it has occurred to us that
the microphone might be advantageously employed in
putervations on the quiesence of volcances. Cannot
Professor Palmieri find a use for it at Vesuvius? Microphones properly placed in the crater and coneted to a telephone would advertise a disturbance any distance

It has been suggested in England that a phonograph diaphragm, shaped like the drum membrane of the human ear, might give improved phonographic utterance. Dr. Blake was led to the same conclusion from finding that flut discs gave too great a promisence to certain heavier overtones of the voice, to which they respond, and hence falsified the tirefre of the voice in reproducing it. By forming the phonograph diaphragm into a flat trumpet-shape (with a funnel section), mufixing the embossing style into the cusp, it was found that the lighter over-tones were faithfully reproduced by it, while the sharper exaggerated over-tones recorded by the flat disc were cut off. When the embossing, as well as the reproducing, was done by this curved membrane, the sharper over-tones disappeared, and the quality of the voice was much more natural. Moreover, there was a gain in sensitiveness; the embossing ould be done at a distance of 15 feet from the speaker, and clearly reproduced. The material of these memranes may be either stout felted paper, varnished on its outer surface, or drum-veilum, moistened and modelled into shape before using. "The principle governing the vibrations of such a diso," says Dr. Blake, " is that of imparting the vibrations to the centre of a membrane, the curve of which enables it to reproduce a large range of over-tones, its tension serving as a counter-balance to the central pressure." Dr. Blake has also found that the groove in the phonograph exlinder when covered with tinfoil, became a resonate for the high scratching noise of the embossing point and materially interfered with the reproduction of the enality of the voice. By stretching a thin layer of rubber-tissue over the cylinder this resonating effect was abolished, and the scratching noise materially

In France and Germany it is proposed to make the phonograph" a feminine noun, because of its pronensity for talking back.

THE French Jury were uncertain whether to consign the phonograph to Class 15, instruments of Precision, or Class 65, Telegraphic Instruments, in the Paris Exhibition, but they finally relegated it to the latter, on the consideration that it can serve as a recorder of telephone messages.

A PRONOGRAPH message was recently sent by Edison's telephone from the Paris Exhibition to Versailles, in presence of several supents.

JULES JAMIN ON THE ELECTRIC LIGHT.-We make the following notes from M. Jamin's recent discourse

on lighting by electricity: The brilliancy of the electric arc is equal, if not superior, to that of the sun-the latter being a star already old, and partially cooled.

Opalescent glass globes, by diffusing the light, reduce

OEX, WEDNESDAY, AUGUST-14, 1

AWARDS AT PARIS TO AMBRICAN PARIS, August 13.—The awards of the in Binal jury have not yet been published his i siderable number of the successful, competing waste a little light by assorption.

When alternative currents succeed each other at internals of one-twenty-fifth of a second, the effect is that of a continuous light.

The humming given out by the arc produced by alternating currents, and even feebly by continuous currents, is a slight drawback to the electric light. The Lostin Company, Paris, furnish all apparatus

The Lostin Company, Paris, furnish all apparatus and materials for the light, but retain the ownersh others, and charge go centimes per hour for a light equivalent to too gas jets, on being guaranteed the requirement of a certain number of years. A merchant of the Lowers states that Jablochkoff's candle gives him more light at 90 per cent. less company of the part

A diffused and uniform light, carefully kept in by closed apertures and shutters, is to be aimed at in electric illumination. At present, in street lighting by electricity, half the light is lost in the sky overhead instead of being reflected on to the pavements.

THE CHELSEA VESTEY have deputed their surveyor to report fully upon the subject of the electric light as a substitute for gas, and authorised him to proceed to Paris to study it there.

It is not unlikely that the electric light will abolish the practice of roughing the cheeks, so common amongst the Indies of Paris. White and red paint is exhibited in all its garishness by the pure white beam of Jablochkoff, and the spurious beauties of the boulevards in all their borrowed planets are pitilestly expored.

An electric light for navigating purposes has been tested on the Ohio River, U. S. A head-light Illuminated the entire river, some distance ahead, while four other lights were placed so as to light the cabin

THE Dundee Town Council have under consideration a proposal to light the town by electricity, the motive power being derived from the "Reckie Linn," a waterfall in the neighbourhood,

Is addition to the Piace and Avenue de l'Opera, ai the Louve, the Jablochkoff light i to so regidi installed in the Magasies de Ban Marriet, the Sikk Chatelet, the Hippodrome, Cours-la-Reine, &c., h. Paris. M. Greech has successfully exhibited to or month at the Heird der Dura-Monder, Rue d'Anita, electric light supplied by battery power. A new lie by M. Delaporte, is also announced.

THE EXECUTE LIGHT IN AMERICA.-The Clevela's (Ohio) Herald lately witnessed a trial of the electric light at the establishment of the Union Steel Scot Company, in that city. The apparatus used has be constructed for the illumination of a large carpet alin Philadelphia. It consists of a Brush dynamic electric machine of 12,000 candle power, arranged give four separate currents, each running an electric lamp of 3033 candle power. Two of the lamps was placed on the third floor, and two on the fourth flourer the immense building, and when the engine was stars up the machine started at the same time, and, wither the slighest manual interference, the lamps fisshed at their light in all its magnificence. The effect was see brilliant. The rooms were flooded with a pure who light, like the light of the sun, and it streamed out all the windows, illuminating houses and streets i a long distance in every direction. The light of very uniform and steady, free from the flickers that used to be an accompaniment of eleclight, and, considering the enormous illuminate power, the light was unexpectedly soft and enders to the eyes. An opportunity was afforded to test to character and whiteness of the light. Worsteds, see alghans, &c., of brilliant shades, were hanging again the wall at one side of the room, and it was note that the colours were brought out as clearly as byt full light of the sun. Estimates were made as to amount that the light furnished by this apparawould cost, if used by the Screw Company as it! used on this occasion, and it was ascertained that?) total cost of the whole light from the four land including the items of consumption of carbon is Car lamps, interest on the investment, and wear and w would not exceed 30 cents an hour. The light F duced was photometrically equal to 800 gas but burning 5 feet of gas per hour each. This amount gas would cost 8 dollars per hour, -Scientife deen-

A LARGE carpet factory in Philadelphia has also illuminated by the Brush machine recently.

EDISON'S MICRO-TASIMETES. — Mr. EESS 18 recently visited at his home in Menlo Pink by Fr. Harckett and Young, of Princeton College, and Harker, of the University of Pennsylvania, who "devisous of examining his instrument for maximate heat. Mr. Edison has made several experiments this apparatus, and has receeded in measuring (Mrythousundhab part of a degree of heat. Pod. Yn.

WINDOWS EXCEPTIONINEERS.—A fact Highty to be every credial in miles, decistron-spects has just keen communicated to the Perenth Andersyn of Sciences by the Communicated to the Perenth Andersyn of Sciences by the Land Communicated to the Communicated Co

PURTATIVE FUNCT OF MACRITE—M. Golds field that the weight sustained by an ordinary electromagnet is always one quarter of that sustained by an electro-magnet with concentric these two her weight electro-magnet with concentric these two her weight weight in at a distance of half a millimeter from the purtative force of the class of the purtative force of the purtative force of the class classified the purtative force of the class classified to the purtative force of the class classified to the purtative force of the class classified to the purtative force of the class classified to the purtative force of the class classified to the purtative force of the class classified to the purtative force of the class classified to the purtative force of the class classified to the purtative force of the class classified to the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the purtative force of the purtative force of the classified to the purtative force of the classified to the purtative force of the purtative force of the classified to the purtative force of the classified to the purtative force of the classified to the purtative force of the classified to the purtative force of the classified to the purtative force of the classified to the purtative f



SATURDAY, AUGUST 17, 1878.

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FRIDAY, AUGUST 23, 1978.

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Scientific News,

TULY 15, 1878.

Elizar Locking for Water.

Promotionism was those on Stack Aven.

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The Manufactuter and Builder.

TREATMENT THE ARX.—The Binshes have introduced the use of the physics in the array, specially for the outputs. The connections are made by double maintained oppose wither, of which the length is equal to include output and the state of the state of the process manyle, from a fixed or and later supports in the process, manyle, from a fixed or and the state of the standard or and the state of the state of the state of the about 10 pounds. The only depiction is that notice in terferon with the state, plant if are comprehend who with the intrument. As the facilities of the triplication of the state of the state of the state of the triplication of the state of the state of the state of the triplication of the state of the state of the state of the triplication of the state of the state of the state of the triplication of the state of the sta which is practiced under others.

Edison's Tasimeter. 7

One of Edison's latest inventions is a most delicate instrument for measuring pressure, which is called a Tasimeter. It is founded on the property, discovered by Edison, that imphinck, when pressed in the form of a button, affects the electric currents passing through the same, and offers a resistance, which diminishes with the pressure, and so sensitive is it that when this pressure varies to the amount of only one-millionth part of an inch, the variation in the electric current passing through it will cause a variation in the deflection of the galvanometer needle, and this variation will be in proportion to the pressure. Thus, for instance, if the carbon button is pressed by a strip of four inches from it, the expansion by heat of this strip, and the consequent increased pressure will cause an increase in the conductibility of the carbon, and the electric current which previously passed through and made the palvanumeter deflect a certain number of degrees, will cause a greater deflection; the same will take place when a gas flame or a match is ignited in the room, even at a distance of four feet. If a strip of relatin is used to press the carbon button, its expansion by moisture will be indicated in the same way, when a piece of moistened paper or a wet finger is held at a distance of four or five inches; the heat of a lighted segar, drying the gelatin, will cause it to contract again, diminished pressure is the result, the current passing through the carbon undergoes greater resistance, and the deflection of the needle will be in the opposite direction.

This instrument is an outgrowth of Edison's experiments with that form of the telephone with which he tried to vary the intensity of electric waves by means of the voice. It promises to be a most important addition to the delicate instruments for measuring very minute variations of temperature.

Thus the extending first history he has in the decision for intermedia, for instance, by he has in the different parts of the solar spectrum, has been the thermopile. This intermed it has on a foresteril decision from the part of the solar spectrum, in a beautiful first the part of

Anemometers.

What the thermometer is in regard to helying holify the property of the property of the second of th



Fig. 1. Importance for the health of the occupants, who, by breathing a contaminated atmosphere, may be equally

or more Injuriously affected than when the temperature is not kept at the proper standard.

Probably the Ignorance of many in regard to this instrument is the cause of the arra suplication, and in order to diffuse a knowledge of it, we will here give a description of the instrument used by us in the exnaintation of the ventilation of the Brooklya Court-

Houre, described on page 74 of our April number. As the currents to be measured have usually easly a small velocity, it is important that the interment should be sensitive and easily pat in motion, and the less that far interduced it start mode by Negretti & Lambee, of London, England. The part on which the current of air act is like the fass of a windmill, inclosed in a light fly-wised, the mutual of the contract of the con-tract of the contract of the con-tract of the con-tract of the con-tract of the con-tract of the contract of the contract of the con-tract of the contract of the contract of the contract of the contract of the con-tract of the contract of the con-

tion us worth a tomoster to prove desired. The intermediate is expected in the algebraic graving, of which Fig. 1 shows the outline of an apparatism red to mouses an air cereant in a herizantal flux. For this purpose it is placed in the algebraic control, with its stale in the direction of the current, with its stale in the direction of the current, which then revolves the when it is control, which then revolves the when it is directly also and the stale in the direction of the current with the current control of the curre

dials and so counts the number of revolutions. Fig. 2 represents a more compact style of instrament, which is adapted to be suspended in the air corrent, and on which the dials are placed directly near the axis of the wheel. It has the advantage of comNew York Daily Cribune

FOUNDED BY HORACE DREELEY

SATURDAY, AUGUST 17, 1878.

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Thus Meconstruct—Mr. Billendy ferriting in treatments and minimize flower for itself survivals scientifies to 2st Secretifies American, in the magnetism scientifies to 2st Secretifies American, in the magnetism of the second of the paper hands on the second of the second of the paper hands on the second exist include the second of the paper hands on the second of the second of the second of the second of the second of the second of the second of the second to the second of

The Sun.

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Scientific Dews,

July 15, 1878.

Edison Looking for Noise.

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Possimon Lording for Noles.

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placed, it will delicet the needle of an ordinary galvasometer asy one degree; belding the warm inger four incluse from the fashineter with the same galvanemeter, will swhig like morel to some at Megrees. This hasteunesn is mow to be used at the actuality

T 841

Anemometers,

What the thermometer is in regard to helping health lings, the anemometer is in regard to their deminder. It is of course desirable, where recess are heated with better, in the star, to have a thermometer; and it is equally desirable, if we wish to be zero that proper ventilation is going on, to test the currents of an anymorth or removed by means of an anomometer, because the presented on the proper change of ar in crowded rooms to of the utmost



Fig. 1.

Importance for the health of the occupants, who, by breathing a contaminated atmosphere, may be equally or more injuriously affected than when the temperature is not kent at the universational.

ture is not kept at the proper standard.

Probably the ignorance of many in regard to this instrument is the cause of its rare application, and in order to diffuse a knowledge of it, we will here give a description of the instrument weed by us in the examination of the rentilation of the Prockive Court.

Jisun, cheribed on page 16 of our April sander. As the carriest to he nearmed here usually only as small valority, it is important that the instrument have usually only more about the constitution of only part in mostlon, on the best time for introduced in that made by Negretti & Lombo, or London, England. The Negretti de Lombo, or London, England. The part on which the current of air acts in like the final part on which the current of air acts in like the final that the contract of a windowli, Indeed, I as high dip wheet, the most time of which is transferred by proper genericy the indicates themedy, similar to throw on age under-

deduced from this. Each of these instruments has been previously tested by the manufacturer by practical experiment, in order to find out what relocity of air current corresponds with a certain number of revolutions per minute, and the account of this is either attached to the battom of the instrument or secompanies it, and is do livered with the same to the purchaser. The manufacturer guarantees the correctness of this statement, which is easily verified by walking with the instrument in a large room free from drafts, letting it revolve by the air currents met, and then comparing the number of revolutions with the distance walked and the time occupied in doing to.

When the velocity of an sir current has been mens ured by this instrument, and found to be say 160 feet per minute, it is multiplied with the number of square feet contained in the cross section of the shuft or mening, and the product is the number of cubic feet of air displaced per minute in the room thus ventilated,

Tax Execuse Lieux.—The Engues papers say that the experiments with the new modes of using the electrie light, have not proved altogether satisfactory there. They confess that many encouraging trials have been made in Franco, but the recent attempt to light up the spece in front of the Bank of England, London, was a failure, and there have as yet been no marked successed in England. A new electric lamp, with incondences acting in free sir, has been described to the French Academy by M. Regaler. A thin red of carbon, pressed interally by an electric contact, and forced, is present antenny by an execute contact, and forces, in the direction of its axis, on a fixed contact, is traverer-i between these two contacts by a pretty powerful carrent, and becomes incandescent in this part, burning ress, and occurre accommences or one pass, terring and thinning toward the extremity. As the end becomes used up, the red, continually pushed on, allpu comes used up, top you, community pursued was, way-into the chatle contact, and is thus kept up against the into the chattle contact, may be one a cape up up a series of fixed contact. The heat developed by the passage of the correct in the red is greatly increased by the comtoe current in toe rue is general, western made on this bustlen of the earlien. An apparatus made on this principle is said to give a clear white light with four neeps is said to give a conse name ngas water our claimed that several lemps on this system may be lit. In France it is a perfect success, as witness its daily use on the Exhibition grounds, and elsewhere in Paris.

NATURE

[August 8, 1878

The Microphone

In reproducing the experiments first made by Prof. Hughes

The Microphone
It reproducing the experiments for made by Frof. Hughes
and for found with the Littlery as the offerait applicamenter,
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Or the many languages forms the ration shows has nateron-and modelines from a significant will make of all soft processes of the control of t

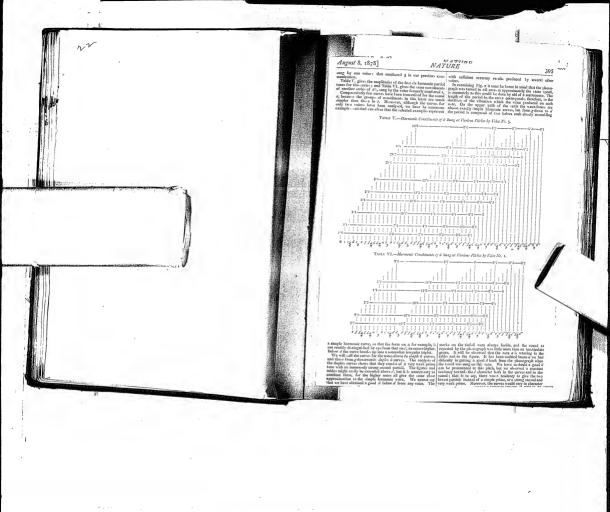
Sour improved forms of microphone and telephone are described in the Argust number of Seribner's Membly. One form of telephone, as devised by Mr. Phelps, gives surprisingly good results. It contains two disperagms, and in shape somewhat resembles a double croun. Twelve per-

manent magnets bent into a circular form are used in place of the single magnet employed in other magneto-telephones. Six of these on each side of the instrument have their like poles joined to one of the cores which carry the helices, and radiate from it in as many different directions. The opposite poles are from a mass many someron successors. The opposite posts are joined to the periphery of the disphragm on the corresponding Jones to the in-transent, while the believe are so connected that the currents generated in them when the disphragms are made to the currents generated in them when the disphragms are mose to vibrate mutually strengthen each other and thus contribute to the effectiveness the apparatus. Some bles of the perform-nance of these improved instruments will be conveyed by mennace or trese raproves moreonests was or conveyed by men-tioning the results obtained at a recent exhibition of them in the tioning the results occained at a recent exhibition of social fields sunday-school room of Dr. Wells's church, Brooklyn, Mr.

on's earlien transmitter was used for sending, and Mr. Edison's earnon transmitter was used for sending, and off.
Phelp's crown telephone for receiving. The sound was also reinforced at the receiving end by the use of a large paper cone, whose smaller extremity was held to the monthpiece of the instrument. The circuit extended from the residence of Dr. Wells, near the church, to the lecture-room. Speech from the telephone was distinctly heard in all parts of the room by an andience of about three hundred persons, while the singing of a vocal quartette, solo singing, and guitar playing, were trans-mitted with surprising clearness and londness. It should be observed, moreover, that the performance in this case was very observed, moreover, that the performance in this case was very different from the so-called musical telephones by means of which only the pitch and rhythm of the notes are distinguished. the tone always re-embling that of a penny trampet. In this instance the quality of the tone, which is the real life of music, was exactly reproduced; this is one of the chracteristics of the magneto-telephone—everything is faithfully reproduced. Dr. Wells addressed the audience from his parloars through the telephone, and not only was he clearly understood, but his voice was also instantly recognised,

THE PHONOGRAPH AND POWEL-SOUNDS 11 I Nour last communication we confined our attention to the letter \(\beta\). We will now turn to the letter \(\delta\) (corresponding to \(\chi\) in "food"). Fig. 2 shows a series of curves obtained for · ^

Fig. 2.—Wave-forms of a Sunglythe same Voice at Various Pitches it by the mechanical process already described. They are all Continued from to was



AUGUST 9, 1878.

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EXPERIMENTS ON MICROPHONE

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Glasgow, August 5, 1878.

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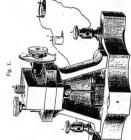
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New-York Daily Tribune.

FOUNDED BY HORACE GREELEY. FRIDAY, AUGUST 23, 1878.

SCIENCE AT ST. LOUIS.

THE SECOND DAYS SESSION. ANTHROPOLOGY, AND ENTOHOLOGY-PROPESSOR NAMCONE DESTANDED HIS RELIEFACE VEDERESS.

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ESTABLISHED 1845. EDISON'S MEGAPHONE

From the time of the first man until now, men have en-From the lime of the first man until now, men have en-dearward to circumvent nature so as to group that which the unsided faculties could never attain. We have telescopes for viewing remote objects, microscopes for making visible the minute, telephones for lakking over lumenre distances. and now, at last, we have a megaphone, which is to the caralmost what the telescope is to the eye, or the telephone to

The speaking trumpet, which, for two contuctes at least and a speaking transpar, which, our two evidences at rear, has been employed to direct sound so that it may be heard has been employed to direct sound to that it may be heard over a lone distance, is much need at no. and is often cm ployed on tand to direct vocal sounds as taking may see heard above other nomals. It is telerability creates that the control of t speaking trumpet is of modern origin, and that it is the in-

Sention of Communication of the Communication of the Are Magna et Union and in his Phonus. gis, mentions a kind of gigantic speaking trumptt, described



PLAN OF MEGAPHONE,

as the horn of Alexander. According to Kircher, this horn enabled Alexander the Great to call his soldiers from a dischannel Alexander the Great to can ma southers from a on-tance of ten miles. The diameter of the ring must have been 8 feet, and Kircher conjectures that it was mounted on

Late in the last century Professor Huth, a German, made a model of the horn, and found that it served as a powerful speaking trumpet, but we are considerably in doubt as to the distance through which sounds can be projected through such an instrument.

The ear trumpet, which is the counterpart of the speaking trumpet, has been made in various forms during the last two centuries, but no form yet devised has any nivantage over a plain conical tube with a bell-shaped or flaring mor Common forms of car trumpets are shown at 1, 2. The one at 3 is telescopic; 4 is provided with a diaphragm (shown in dotted lines), which renders the sound less confused, though it does not increase its strength; 5 is a shell having a mouth piece and car tube; and 6 is a stethoscope.

So much for the antecedents of the megaphone. Professor Edison, in his researches on sound, has made many curious experiments, one of the most interesting of which is that of conversing through a distance of 114 to 2 miles with no other apparatus than a few paper funnels. These funnels constitute the megaphone, an instrument wonderful both for its simplicity and effectiveness. In the plan view the details of construction are clearly shown, and our large cugraving represents the instrument as it stands on the balcony of Professor Edison's laboratory. A mile and a half distant, at the spot indicated by the two birds, there is another instrument exactly like the one in the fore

The two larger funnels are 6 feet 8 inches long, and 2734 inches in diameter at the larger end. These funnels are each provided with a flexible car tube, the end of which is placed in the car. The speaking trumper in the middle does not differ materially from the ordinary ones. It is a little longer and has a larger bell mouth. With this instrument conversation can be readily carried on through a distance of 114 to 2 miles. We have conversed and heard singing through the distance named, although both the singing and talking were in the ordinary tone of voice. A low whisper, attered without using the speaking trumpet, is distinctly audible at a thousand feet, and walking through grass and weeds may be heard at a much greater distance

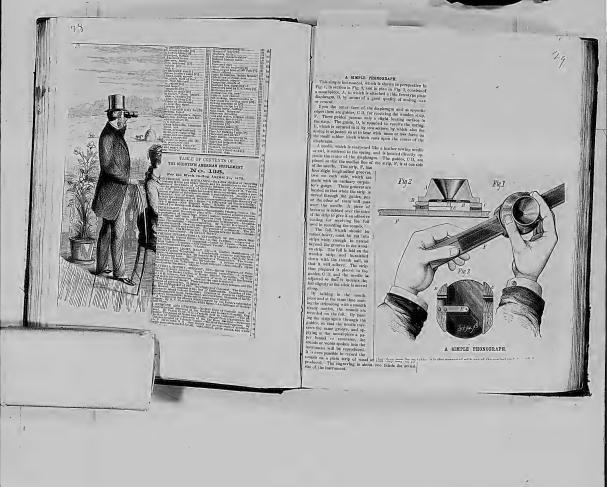


SPEAKING TRUMPET IN THE MERCHANT SERVICE



PAR TRIBURY





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WORLD OF SOURCES

ARTHUGES

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In order to further simplify the letephone call, Mr. A. La Nove Fester, of the Silvergonz Telegraph Works, has now perfected a linteration Telegraph call, which entirely does away with the softing does away with the second of singing into the telephone, at with which call, or turning a headly, as is the case with this of Mr. Cooke.

Christopher and the relating a baselin, with the many large and the property of the control of the second to the control of th

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At the Paris Exhibition, experiments have the rurs framounts, experiments are been made with the telephone in combination with a phonograph. The telephone was placed in front of the reproducing drum of the phonograph, and the message imprinted on the full was transmitted by the telephone to

fact in connection with this cellipse in the the corons, was markedly different from the appearances presented in 1809, 1870, an 1871; the hydrogen was faint, and resemble invisible, as was the care in 1874 with spectroscope shows that the light of the occum consists largely of a line in the occum consists largely of a line in the green part of the spectrum, nearly coincident with Kirchhoff's 1474, or the "iro line," For some time it. dont with Kirchhoff's 1474, or the "live line." For some time it was supposed the thin light was composed mainly of iro rapour, but that supposition, which, it mus be confessed, was not very probable, we disproved by Prof. Young, who, by mean of a fine grating spectroscope, found tha the coronal line is not identical with the supposed to he has to identical with the the comal lime. Such theories, commander in proposed to be due to from. It is doubten upposed to be due to from. It is doubten whether the corona can be vapour at all the companies of the compa

The English Methut.

Soliton properties does not intend to attempt to the properties of the properties

smart regords different to these are significant to these are significant to these are significant to the second to the second to the second property sizes that date. It is to describe the second to the second supplies that a more approximation, and the second to of gata as the fram pures over a cut-of gata as the fram pures over the cut-soultime leave gooding-town have failed from the fine and injured persons under-charge than the probability of sopring-layer or developing a "devey of unti-down mything but the cuteness with which they are credited if they cannot device about mything but the cuteness with which they are credited if they cannot devi-ted the cuteness with which they are credited if they cannot devi-ce only the cut-conflict or the cut-conflict or which the cut-conflict or which the cut-conflict or which the cut-conflict or which the cut-torial to the cut-conflict or which the cut-torial to the cut-t userin to other engineers, for there has been some inclination to push the question on both in London and some provincial towns where quick transit from one part to another in becoming more and more : necessity of the times.

> ELECTRO-MAGNETIC ROTATION OF LIQUIDS AND PROJECTION OF TH PHENOMENA.

(M. Illerton, in Journal of Physics).

(Tillia at in Sprigion must be about as abla—
instruction in experimental physics. If
Tillia at in Sprigion is the same of (M. BERTIN, in Journal de Physique.)

A NEW FORM OF TELEPHONE CALL INCE the introduction of the talephone can membe of devices have been employed as the means of liling the attention at the distant station, the tole one itself not being sufficiently loud to be bear less it is hald close to the ear.



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The first form of mall interment and reaged to interfine are magnetic interfined are requestly interpolar are to the magnetic interfined are requestly interpolar and the magnetic interfined are requestly interpolar and the magnetic interfined are requestly as the magnetic interfined are requestly as the magnetic interface and the magnetic interface are represented by the magnetic interface and the magnetic interface are requestly as the magnetic interface and the magnetic interface are requestly as the magnetic interface and the magnetic interface are requestly as the same of the transfer and the magnetic interface are requestly as the magnetic interface and the magnetic interface are requestly as the magnetic interface and the magnetic int

or otherwise causing the telephone disphragm to ribrate violently, the disphragm caused interaction contacts to be made between a battery and the line for such time as the pask on the telephone was hold down. The intermittent correct caused a suffi-ciently foul noise to be given out by the receiving thinkans.

ciently load noise to be girtae was of the therebose.

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ent. Mr. Edison, in America, has also designed two or Mr. Millen, in America, has has devigated two or three imposites arrangements for telephone cells. In our of three the receiving telephone is made use of most of three the receiving telephone is made use of a finish terre, privated at its central, is made to red. On the thisphargan being threws into vibration red. On the thisphargan being threws into vibration red. In the things of the terre stuffing or the interesting action, the send of the leave rating or the interesting receives a succession of blows, causing it to redound, at both the contract of the contract of the second at the contract of the contract of the second of suitable study, so that the end of the fever is reating on the disphargan. In order to further simplify the telephone cell, Mr. A. Le Nove Poster, of the Silvestown Telegraph Works, has now perfected as interrestent test tester cell, which entirely does away with the order of ainging into the telephone, we will the necessity of ainging into the telephone, we will the state of the cell of the cell of the cell of the cell of the cell of the telephone, we will that of Mr. Clocke.

When the second profession is investigated to an investigated to the control of a second policy of the control of a second policy of the control of the cont

At the Paris Echibition, experiments have been made with the telephone in combination with a phonograph. The telephone was placed in front of the reproducing drum of the phonograph, and the message imprinted on the told we transmitted by the telephone to Verentiles.

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SELECTED CORRESPONDENCE.

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SELECTED CORRESPONDENCE.

STATE OF THE PROPERTY OF THE PROPERT

NEW YORK, AUGUST 24, 1878.

Scientific American Supplement, Vol. VI., No. 138. Scientific American, established 1845.

M. GIAFFE'S MODIFICATION OF EDISON'S CARBON TELEPHONE.

TRICESPHONE.

TRICESPHONE CHARGE AND ADDRESS AND ADDRE

ammers. Blowing on the plate produces a sound like the rushing of

waters.

Conversation in any part of a room in which the telephone is bared can be plainly beard in the receiving instrument. It amplifies sounds in a marvelous manner, and is said to be to the ear wint the microscope is to the eye. We take the engraving from Bastration.

LABORATORY NOTES

By Joses C. McKenomer.

1. Get Falls V. 900 Hamerina Kra., This is a 'libeda first of the Grant of the Control of the Control of the Grant of the Gr By JOHN G. McKendrick,

good,

2. The Phonograph as a Transmitter,—By placing Hugher's
micropiane on the disk of the phonograph the latter will
transmit the such recorded on the third to a telephone at
a distance. Thus we have a consideration of micropiane,
phonograph and telephone, which promises to be of time. panagraph and telephone, which promises to be of use, it is very agent to hear the phonograph speaking in or room and to know that some one cle in another room, or at a long distance off, is also hearing a repetition of the sound. I have note that arrangements might be made by which the room of the produced in a dozen different places at once.

the count might be repealed in a dizent different places at the country of the Pharappea, but the country of the country of the experience have count to the countries in the odd seld of experience have count to the countries in the countries of which a right measurement of the histological for dis-cipled the countries of the histological for dis-cipled the countries of the histological for dis-cipled the countries of the histological for dis-cipled the countries of the histological for dis-cipled the countries of the histological for dis-cipled the countries of the countries of the countries of the histological form of the photographic spinole. With this section current of the photographic spinole, which is the countries of the photographic spinole, which is section of the countries of the properties of the countries of the photographic spinole, and the countries of the photographic spinole, and the countries of the photographic spinole, and the countries of the photographic spinole, and the countries of the photographic spinole, and the properties of the photographic spinole, and the properties of the photographic spinole, and the properties of the photographic and beautiful the properties of the photographic and beautiful the properties of the properties of the photographic spinole, and the properties of the properties of the photographic plane.

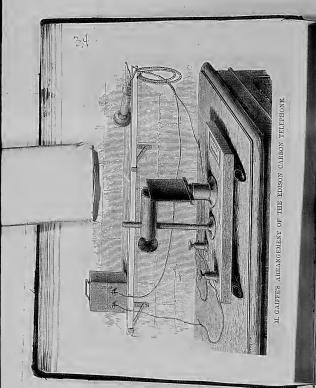
4. The Microphens.—I have field many experiments with the layersions arrangement of Mr. Hughes, and have been used to make and provide a please the primary coll of the limiteding machine. When fixed in the tox of a monoclosed second found in the distant slephone. When pixed on the sounds foundy in the distant slephone. When pixed on the sounding-locard of a plano, I have heard deliredy a text-set to the threat by an infoliar-third rand, the faintees till or whitper its saudhle; and it transmits the mucclair-sessual from a powerful below.

Jound from a powerful blegs.
5. A Ictum Experiment.—Place the heart of a frog on the electrodes of Du Bols-Reymond. in connection with a sensitive reflecting galvanometer. The rhythm of the pulsations must then be observed by the swinging to and fro of the spot of light on a transparent sereen. This has often been observed by physiologists, but, considered as a lecture experiment, it is very instructive.

erroit by phydologists, but, considered an a leverus experi8. The Somility of the Thylogon to Phydio Gerrarts.—As an example of Hale, I may Insidered the following experiments polarized to the Physical Control of the Physical Corrarts.—As an example of Hale, I may Insidered the following experiments polarized to the Physical Control of the Physical Control polarized to the Physical Control of the Physical Control polarized to the Physical Control of the Physical Control was the found in the Control of the Physical Control was the found in the Control of the Physical Control was the found in the Control of the Physical Control was the found in the control of the Physical Control was the found in the Control of the Physical Control was the Control of the Physical Control of the Physical control of the Physical Control of the Physical Control of the Physical Control of the Physical Control of the theologon. The click was stronger when the muck was remaind notion independent was the physical designed, in the control of the Physical Control of the Physical Control control to the Physical Control of the Physical Control control of the Physical Control of the Physical Control control of the Physical Control of the Physical Control control of the Physical Control of the Physical Control control of the Physical Control of the Physical Control control of the Physical Control of the P

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Scientific American

ESTABLISHED, 184

THE RIGHTS OF INVESTIGATORS.
In the Scientific American Supplement for July 20. 1878, there was published an article entitled " How to Build a Working Phonograph," with working drawings for the construction of a cheap and practical instrument. In the construction of a cheen and practical instrument. In the Scientified Amenican of August 24 we described and figured. "a simple phonograph," in such a manner that any elever boy could make therefrom an instrument that would illustrate perfectly the essential mechanism and action of that wonderful invention.

In so doing we have only carried out the wish of the inventor, as expressed to us, in helping to give the widest publicity to has invention. The company which has purchased the right to make the phonograph for commercial purposes, however, take a different view of the matter, and purposes, nowever, use a university view or the matter, mai protest that it is not only incansistent on our, part so to en-courage infringements, as they term it, but lilegal on the part of our readers to follow the directions we have given for making phonographs for experimental purposes. In some instances, we are informed, such makers have been threatened with legal penalties for doing what they have a perfect right to do; and possibly some may be deterred from pursaing their investigations in this direction, through fear of offending the patent law, and so involving themselves in legal difficulties.

The law on this point is not obscure. Investigators have rights as well as patentees; and among these is the right to make any patented article for the purpose of ascertaining its sufficiency to produce the described effect; in other words, for testing its practical utility. It is only when the machine or other article is made for use or sale, with the latent to Infringe the patent right and deprive the owner of his lawful" reward, that the net becomes an offense against the law. When a machine is made for the "mere purpose of experimenting on the sufficiency of the specification," or—as was held In Jones rs. Pierco, Webs. Pat. Cas., 125, Patteson, J .for the maker's "own amusement, or as a model," there is no infringement.

If this were not the case the progress of invention would It ims were not not ease the progress of invention would be perty refrontly hindered; improvements you'd be next to impossible; and practical investigators and students—from whom most inventions come—would be grievously hampered at every stage of their propress. Unfortunately the purchasers of patents are too apt to construct their rights so us to make them cover pretty much the entire universe, and, if they could have their own way, would allow no one to move in any direction without their consent. This may be a natural outcome of human selfshness; but it is not at all in accordance with the spirit of the patent law.

As it appears to us, the parties controlling the phonograph, like the telegraph companies, have missed, or rather have refused to avail themselves of, a most profitable field of operation, in not meeting promptly the eager public demand for experimental instruments. Thousands of instruments could have been sold, at a price affording a large profit, could have here fold, at a price affording a large prou-ling he rally low, to persons who would have been glad to buy them as curiodities, or for the purpose of studying their ingular properties and effects, this without interfering it the least with the use of more cotly and perfect instruments for hadness purposes. By refaining to meet the proper de-mand, they have simply compelled investigators to make their own finderly and they have no right now to compute NATURE

[July 18, 1878

The Protocyteph In experimental platfy with the photocyteph is control to be a protocyteph in control to the protocyteph in control to the protocyteph in control to the protocyteph in The Phonograph

THE ENGINEER.

JULY 19, 1878.

2090, Tenermonis, Thomas Alva Edison, Mento-purk, New Jersey.—15th Jaco, 1878. 2018, Thanness, Thomas Williamon and Alexander Younger, Helbile,

Vot. XXXVIII. No. 973

A SINGING TELEPHONE. By HENRY MORTON, Pb.D.,
President of the Stevens Institute of Technology, Hoboken, N.J.

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ENGINEERING.

EDISON'S CARBON TELEPHONE.

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Meulo Park, N.J., U.S.A., July 8, 1878.

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July 25, 1878

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RIPENING OF GRAPES AFTER REMOVAL FROM THE RIPENING OF GRAPES AFTER REMOVAL FROM THE VINE,—In the Gazetta chimica Italiana, vii. 517, some experiments by M. Pollacci are described, in which he reperience by M. (blaces are temporal to "old-five temporal final that the process of ripening combined for a centum time after the grape has been removed from the parent plant. The luminose of first iterative or service and the quantity of gleeces plant. The control of the process of the p a time, the ripening never attaining full maturity,

Library on Martines, and a meaning time throughput property of Just Theorem 200 and 100 SE OF METHYL CHLORIDE FOR THE PRODUCTION caoutchouc tube) with an air-pump,

FORMATION OF HYDROCARBONS BY THE ACTION OF FORMATION OF HYDROGARBONS BY THE ACTION OF WATER ON MANGANESE I ROY ALLOYS CONTAINING CARBON,—Close found that by acting on Spiegeleisen with tilute sulphuric acid bodies resembling the petroleum hydrocarbons were formed. On trying the action of pure water at 100° no results were obtained, while at 250° with more petroleum better determined with a crimen water at 100° no results were obtained, while at 250° with eated steam, a certain action was perceived which super-neatest secan, a certain action was perceived which increased with the temperature, being completed at dark red. The hydrocarbons, however, were again decomposed. The same author has since tested a series of manganese alloys, and finds that the best results are abstrated how. manganese alloys, and finds that the best results are obtained by means of one containing roughly Aln 85, Fe 6, C 35, Graphite 4, Si 11. Small portions of this, treated with boiling water, decomposed the latter with the evolution of hydrogen, oily drops being simultaneously formed, and the gas burning with a huminous flame slowed the presence of hydrocarboss. Another alloy of nearly similar composition gave the following results: the flask contained slightly alkaline water with a mixture of item and manganese oxides in suspension; the liquid hydro-carbons in the condenser were similar to those previously

of the serveral substances. By the set flower communication of the serveral substances in the set of the serveral substances and the set of the serveral substances are set of the serveral set of the serveral set of the serveral set of the serveral set of the serveral set of the serveral set of the serveral set of a syrupy consistence and year set of the serveral set of a syrupy consistence and year set of the serveral set probably be C.H.Fl.

GEOGRAPHICAL NOTES

In the province of the control of th In the just-published number of the Royal Geographiused in elementary schools. Turning to what is required in the future, Mr. Galton mentions that they have received a letter from a master of one of the great public schools, urging them to plan a system of diagrams esplanatory of different physical features. His own opinion, Mr. Galton says, is that what is most greenly needless osme simple and well-methodised system of experiments, some simple and well-methodised system of experiments, saited to illustrate lectures on the main features of physical geography. He has no doubt that an extension of the methods of illustrating the facts of physical geo-graphy—as used by Prof. Tyndall and Dr. Carpenter— on a small scale and on a lecture-room table, is perfectly feasible. Thus, as every thunder-shower shows in the streets the phenomena of crosion and denosition, he has no doubt that, on a lecture-table, with a can to supply water, and with a certain quantity of sand gravel, and clay, all the main phenomena of river-action, such as the sifting of materials, the stratification of deposits, and the formation of deltas, might be successfully shown.

MEANS have recently been found, we learn from the South Australian Register, for still further increasing the usefulness of the Hon, (now Sr) T. Elder's camels on the far morther; stations with which he is connected. The xperiment of using them for draught purposes has been ried, and recently two teams of six camels drew loads of 51 tons each from Beltana to Port Augusta. The plan adopted is to yoke the animals together something after the manner in which bullocks are coupled, and one man only is required to manage each team. It has been found fround, the gazes also hurning with a superpression flame, the loss thus shown that water about 10 meters of the loss thus shown that water about 10 meters of the loss thus shown that water about 10 meters of the loss thus shown the loss of the l

NATURE

THURSDAY, AUGUST 1, 1878

THE ECLIPSE OF THE SHA

THE following telegram was received from Mr. Lockyer at the moment of going to press. It contains the fullest account of the results of the Eclipse, and of the conclusions arrived at by some of the most eminent of the observers engaged on it, which has yet been published :-

Corona smaller and less brilliant than in 1860 and 1871 Hydrogen faint in corona. Generally invisible, as was also the case in 1874. Ranyard's polarisation confirmed Young's law, both (?) and lines brilliant. Corona probably pho. tographed in Siam (?). Fluorescent eyepiece worked well, Bright line near B; heat line in ultra red by thermopile Watson's Vulcan, Right ascension 8° 26', declination 18" N. Result-Jower temperature of corona gas, as confined to chromosphere; almost entirely continuous spectrum, isolated from gaseous spectrum. Corona changes with sun-spots, and prominences increased. Continuation of absorption with deficit in ejected hot matter induces solar radiation. Young, Watson, Draper, Lockyer cable

The following telegram appears in the Daily News of yesterday from its special correspondent at Rawlings, Wyoming, U.S., under date July 29:-

The eclipse has been most satisfactorily observed at all the northern stations, and at all the southern ones from which news has been received up to the present time.

The corona was markedly different from those observed in 1869, 1870, and 1871, and this year the observations have demonstrated the great variation in the structure and condition of the sun's outer atmosphere when there are most and fewest spots on his disc. The corona was are most and rewest spots on his tire. The corona was small, of a pearly lastre, and the indications of definite structure were limited to two portions. Several long rays were seen, and Prof. Newcomb, who had erected a screen on a high pole, thinks he detected the zodiacal light extending six degrees from the sun. Prof. Draper, who used a Rutherfurd grating two inches square and a camera of large aperture, and Mr. Lockyer, who placed a small grating in front of an ordinary portrait camera, both obtained photographs of the spectrum of the corona. A continuous spectrum only was recorded, and in ordinary spectroscopes the bright lines usually seen were also gether absent. Mr. Lockyer, who observed with a simple

All these are so many indications of a wonderful change since 1871, and there is great probability that the substance which gives rise to the continuous spectrum is not that which produces any of the lines.

Prof. Newcomb's party and Prof. Barker made a care ful search for the dark lines in the corona, but none were observed. Prof. Young has telegraphed that there were no lines observed in the ultra violet at Denver. It would appear, therefore, that he also has obtained photographic evidence of a continuous spectrum. The radial polarisa tion observed in 1871 has been confirmed by Prof

A new use of the eclipse has been introduced on this occasion. Professors Newcomb, Watson, Holden, and occasion. Froressors according to according planets others have included a search for intramercurial planets in their programme, and Prof. Watson has been fortunate enough to detect a body of four and a half magnitude near the sun, which certainly is neither a known star near a planet

Every facility has been afforded to the astronomers, and a fourth station along the northern line crossing the belt of totality was at the last moment organised by the Union Pacific travelling photographic car being run to a point between the Eclipse camps at Separation and Preston

The tasimeter, the new instrument on which Mr. Edison has been working unceasingly here, has proved its delicacy. During the eclipse he attached Thomson's galvanometer, the index being set to zero, when the telescope carrying the tasimeter was pointed several degrees from the sun. The point of light rapidly left the scale, when the corona was brought upon the fine slit by which the tasimeter itself was protected. There was n chromosphere to speak or, and only one prominence. the horn observed in 1865, but very dim

LETTERS TO THE EDITOR

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man and the "variable resistance carloss tubes," which he had given to Mr. lughes and others for important exterior applications as early as 1866, and that it depends entirely on the fact long exp pointed out by Da Moncel, that increase present between two conductors in contact produces dimination of electric resistance between two conductors in contact produces dimination of electric resistance

between them.

I cannot but think that Mr. Edition will see that he has let himself be buried into an hipsalfee, and that he will therefore and real until be retract his accessitions of bad faint publicity and another the mande bern.

William Thopicon William and bern.

Yachi Latla Realis, Cours, July 30

cocor during the operation. For the different sites of spiders, different jetty and postoons were used, but spart from this the operation was carried on in the same manner than the control of the same manner while to carry out the smaller ones in doubter far that while to carry out the smaller ones in doubt of the was a dangerous operation, the larger ones were far the was a dangerous operation of the larger ones were far the same than the same of them in fact were subjected to a term of the same than the control of the same than the same tha flat were subjected to a secret trial in this or allowant in the control of the c

Lifting the Girders to their Permanent Resting Places. The general arrangement of the six columns which columns rest the ends of the main girders, the end cross girder and end horizontal bracing having been left out so as not to come in the way of the four central columns and their bracings during the process of lifting. To each vertical end post a T strip is bolted from top to bottom in the same manner as was described for the large caissons. In common with these it has all inch holes at the inches distance. A transverse trough girder of slightly shorter length than the distance between these end posts the state of the s power for this purpose. The diameter of the pump-plungers must therefore be small, and the movement of the rams consequently a slow one. It was, however, possible to lift 20 feet a day, and during the long days of summer a 40-feet lift has often been reached in 24 hours. Another set of apparatus was kept in readiness on the next lifting circler, and while it negations were continued when the girder, and with it operations were continued, when the girder had become too high for the lower ones, which then in their turn were shifted to a higher point. As the girder rose, the bracings connecting the outer columns with the four central ones were put in, and after it had reached its final height a system of girder capable of carrying the bed plates and superstructure were fastened on the ten of the columns. on the top of the columns, and the girder which had been elevated to a few inches above its proper height was lowered down on them. Before this could, however, be done, they had to be connected to the next set of gleders, as they had to be connected to the next set of gleders, as they were calculated as continuous gleders and joined [3,6].

together in sets of four. To make these junctions, one of the together in sets of four. To make there junctions, one of the ends had to be lifted up from a you do junction, while the junction plates making the top and bod years, while the junction plates making the top and bod years of the griter at little under the world then produce an initial strain in these junctions and would then produce an initial strain in these junctions in the produce and in the produce and initial strain in these junctions, the junction is the produced by the produced by the produced by the produced by the produced by the p plate having all to be carefully market and interferent the girders were still hanging in the apparation and ex-circumstance in one case led to a disaster with caused great loss and delay. On February 3, 1677, while the great loss and delay. On February 3, 1677, while the year loss and delay. On February 3, 1677, while the was in preparation, and to prepare the arriving case was in preparation, and to prepare the arriving case was in preparation, and to the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the conadjacent girders which had not been raised. The wind continuing to blow in strong gusts produced violent vibrations in the unbraced ends of the girders and realized saided then to the edge of the lifting girders, reached, breaking and the limit of stability was reached, breaking down the limit of stability was reached, breaking down the limit of stability was reached, breaking down the limit of stability was reached, breaking down the lifting produced by the best of the produced by the best of the produced by the best of the lifting with the lifting the lifting with the lifting the lifting with the lifting the lifting with the lifting the lifting with the lifting the lifting the lifting with the lifting the lifting with lifting the lifting with lifting the lifting with lifting the lifting with lifting the lifting with lifting the lifting with lifting the lifting with lifting the lifting with lifting the lifting with lifting the lifting with lifting the lifting with lifting with lifting with lifting the lifting with l

Lifting of the 145 Shant.

Lifting of the 125 Spans, The lifting of the 125 Spans, The lifting of the 125 pans was accomplished in a somewhat different manner. The hydrasile lifting apparent of the 125 spans was also spans and the 125 spans was also spans and the 125 spans was also spans and the 125 spans was also spans and the 125 spans was also spans and the 125 spans was also spans which the price to the colours was where the girder stood if feet thought and the 125 spans was also spans which the 125 spans was also spans was also spans was also spans was also spans was also spans was also span hoisted while fixed together by temporary transverse bracings, which kept them at a greater distance apart than they would finally be, and hoisting them up outside the columns altogether. It was therefore necessary to modify the apparatus to this extent that the girders, after disconnecting the temporary bracing, could be slung in and permanently braced.

in and permanently braced.

The work in connection with this bridge was begun in
the summer of 1871, the first stone of the land pier on
the south side being laid on July 22 of that year.

During the first three years, however, little progress was
made, and the operations during that time must be considered as being more of an experimental nature. From August, 1875, however, the progress was very great, and as the managers and men gained experience, the erection of the structure was proceeded with at a vastly accelerated rate. New workshops, jetties, and appliances of various kinds were added, a foundry creeted for the of various kinds were added, a loundry erected for the casting of columns, and in September, 1876, it was found necessary, in order to keep pace with the baldding of piers and erecting of girders on shore, to work night and day, and the contractor introduced for the first time in Sect-land electric light for out-door work. Two lamps, exch of 1,000 candle-power, the current for which was get by Gramme machines, did excellent service. The were placed at right angles to each other, and in this were placed at right angles to each other, and in link
manner they lit up an area of 100 by 500 yards in such
a way that every kind of work could be carried on unianetruptedly. This was of great importance for the floating
out of piers and girdlers which had to be done at high
water, the preparations commencing three or four hours beforehand, and therefore having sometimes to be made in the early morning. The last pier was in this manner

August 1, 18787

The bridge was secrety tested by Gen. Headsman has SecULIDSE.

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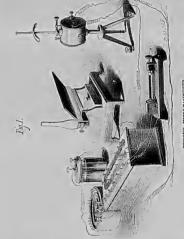
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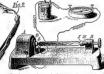
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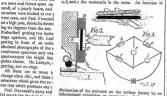
ful search for the dark lines in observed. Prof. Young has t

no lines observed in the ultra appear, therefore, that he also evidence of a continuous spec tion observed in 1871 has Holden A new use of the eclipse 1 occasion. Professors Newer others have included a search Vol. xviii.-No. 457

indicated by the nonconact of the palvanemeter needle-chables arise of them values, pixed in the instrument, which are not one of the palvanement of the instrument, children control of the palvanement of the palvanement of the palvanement of the from the hand, so as to more three instruments, which is not from the hand, so as to more three instruments, which is not freed in the single-child register by attempting feeding and interest and the pixel of the



For these experiments the instrument is arranged as in but for more delicate operations it is connected with a Thomson's reflecting galvanometer, and the current is regulated by a Wheatstone's bridge and a rheostat, so is regulated by a Wheatstone's brilge and a rhoostat, so that the resistance on both sides of the galvanometer is equal, and the light-pencil from the reflector falls on o of of the scale. This arrangement is shown in Fig. 1, and the principle is illustrated by the diagram, Fig. 4. Here the galvanometre is at C, and the instrument which is at I is adjusted, say, for example, to ten ohms resistance. At a, b, and c the resistance is the same. An increase or



infinitesimal expansion or contraction of the substance under test is indicated on the scale of the galvanometer. under test is indicated on the scale of the gatvanometer. The carbon button may be compared to a valve, for when it is compressed in the slightest degree its electrical enductivity is increased, and when it is allowed to expand it partly loses its conducting power.

The heat from the hand held six or eight inches from stripe of when the property is the formal partly of the property in the formal partly of the property of the p

KEIV GARDENS REPORT

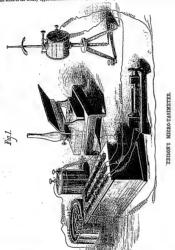
SIR JOSEPH HOOKERS Annual Report for 1877 is more than usually bulky, extending to fifty-three pages. The report opens with the number of visitors admitted to the gardens during the year, which amounted to 687072, a great excess our those of the preceding admitted to the grardens during 18th year, which amounted to 659793, a prest access our flows off the preceding control of the preceding the p Sir Joseph pays a high tribute to the inclifigence and courtery of the people. It easys: "I cannot adequately express my sense of the liberality with which travellin, facilities and hospitalities of all kinds were accorded to a consideration of the constraint of the constraint of the ever I work in America. The fact of my history con-nected with this establishment [Kept] was a recognised pusport, and this even in the remote settlements of we Far West, for I found a reading people everywhere, for of whem had not heard of Keev Tardens. In the Northern Bound of the contraction of the contraction of the con-traction of the contraction of the contraction of the foundation of the contraction of the contraction of the sense of the instance of the contraction of the contraction of the sense of the instance of the contraction of the contraction of the sense of the instance of the contraction of the contraction of the sense of the instance of the contraction of the contraction of the sense of the instance of the contraction of the states to America the progress of science, and of institu-tions for the instruction of the people in science, occupy a prominent place in the cheap illustrated periodical literature of the masses; and nowhere on the globe is this fiterature better or so universally read as in the States. It is hence not wonderful that the progress of such establishments as Kew, the British Museum, South such establishments as Kew, the British Museum, South Kensington Museum, Ke., should be better known amongst all classes of the people there than they are 'n the United Ringdom generally, and so I found it." Under the head of "Interchange of Plants and Seeds," as also under that of "Official Correspondence," a wast deal of information is gathered together on the acclimation

sation, extended cultivation, or further development of useful plants. Thus we find the ipecacuanha (Cebhacli) interior paints. I mus we mot me specacuanna (cepnaturi specacuanha), a native of Brazil, has been distributed from the Calcutta Botanic Garden to Ceylon, Singapore, Burmah, and the Andamans. Dr. King, however, does not take a very hopeful view of its ultimate success in India, partly on account of its peculiarly slow growth, which tends to prevent its cultivation being taken up with spirit by European planters, and partly on account of its insig-nificant appearance, which does not even excite interest nificant appearance, which does not even excite interest among the planters. Sir Joseph suggests it as "worthy among the planters." Sir Joseph suggests it as "worthy not do well to establish the Indian government would not do well to establish in the Indian possession for its grouth." In connection with this solv-necessing for its grouth." In connection with this solv-neces for the Indian possession with the tropical climatic conditions cases of dynamics, it is satisfactory to more that "here seems some prospect of its cultivation being attent to excess the construction of the conference of the con-The carbo hutton may be composed to a table, for in the native futies of train piece the soil and climate when it is composed in the slightest deeper in detection and the slight state of the state of

EDISON'S MICRO-TASIMETER.

I power of the most subtile of forces, must retire in favour of an instrument that can weigh that force.

We are included to Mr. Edition for the following illustrated assumed to his latest loventies, six, the micro-taminutes is the curious with the street invention of the constant of influsional pressure. The Stientife American, in which the account Mrs. Edition with constant of the curious thicknesses, he accurately the constant of the



thermopile, hitherto forement among deficate indications of difficulty. So sensitive was the carbon button to changes of changes of temperature, must now be consigned to the of condition, that the expansion of the rubber telephone tear ranks, and the radiometer, which exhibits the motive | handle rendered the instruments instricturing, and faulty

AUGUST 2, 1873. Edison's Micro-Tasimeter.

indegrative. Iron handles were substituted with a similar scale. A told body placed near the vulcanite strip will result, but with the additional feature of remains and early the light-beam in the opposite direction. On the strip will remain the proposite direction of the strip will remain the proposite direction. There sounds Mr. Editor attributed to the movement of other mans is distingly indicate by this instrument.

unitie exp., o, is placed in contact with the platiment disk placed to operate the intermeters.

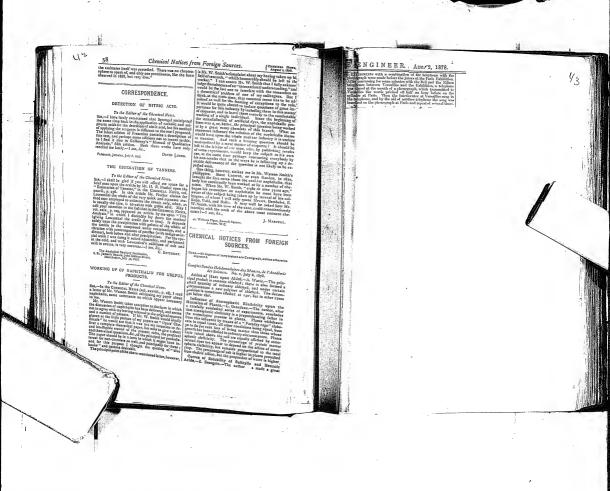
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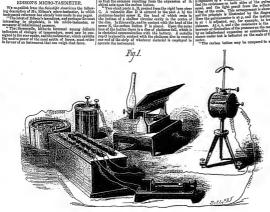


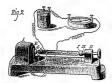
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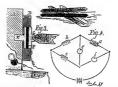


EDISON'S MICRO-TASIMETER.

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AND WORL OF SCIENCE AND ART. FRIDAY, AUGUST 2, 1878,

ARTICLES THE MICROPHONE-TELEPHONE.

THE MICROPHODE-PLEEFINGS.
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The first edition of this work was published in 1853; the second in 1853; and the third in 1871.
 The metallic succeptance of Professor Hughes have proved in the need striking manner the truth of the preceding wanter.

MR. EDISON AND THE MICROPHONE.

MR. DIRECTOR AND ALLE AUTOMOTIVE ME, WE notice that our contemporary The Engineer in its issue (of last week devotes some considerable space to a renewed attempt to injure the character of Mr. W. II. Proces as well as that of Professor linguistics in the age on several previous occasions, signally failed to prove anything but its own abort-

We have no intention on the present occasion of wasting our space upon a discussion of the article to which we refer, but we shall dismiss the subject for the present until the replies from Mr. Edison for the protect until the replies from Mr. Edison blindel rocks its. In the mean time we would adrice the residence of our contemporary to look at a reason of the residence of the protect volume, and which is in itself a complete answer to its own article of last week. They will there find it distinctly stated that Mr. Preece, in common with three other genelisenen, was tel into the secret of three other gentlemen, was let into the secret of the internal construction of the microphone on the 2nd of May last, on which occasion it was decided that Professor Hughen should bring his discoveries before the Hoyal Society the following week; it, cannet therefore he a matter of surprise to any one except our contemporary that "Mr. Procee was in the recret of what Professor Hughen was doing" all

the recret of what Professor Hughes was doing," all the time that he spoke at the Society of Arts on the 5th of May, or five days later.

We have in previous articles clearly stated the We have in previous articles clearly stated the Edison on the one hand, and Mr. Prece and Pro-fessor Hughes on the other; no unprejudicel pro-nom one terrains the smallest doubt as to the honour of citler Mr. Prece or Professor Hughes, and we believe that Mr. Edison himself will not be slow to acknowledge that he was misled by the unfortunate istakes of The Engineer's reporter.

The English Mechanic

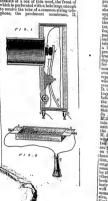
1 W D WORL OF SCIENCE AND ART. FRIDAY, AUGUST 2, 1878.

ARTICLES,

THE MIGROFHONE-TELEPHONE.

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* By G. F. Banken Prof. of Physics' Gairgestly Pennsylvania. Trum Sillinean's Journal of July, 1974.

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The Eclipse of July 29, 1878.

The Eclipse of Juny 29, 1878.
It is yet to early to extinate the importance of the results that may accuse to reience from the observations of the solar eclipse on, the spill pilly. Empirical that some very theoroph work has been accomplished, and it is safe to predict that reience has Israely indicated by the efforts of scientists on this occasion. The control of the proper amonances that his observations have rendered it certain that the spece-

Professor Draper announces that his obser-vations have rendered it certain that the spec-trum of the corona is a continuous one. Pro-fessor Watson announces the great discovery of an intra-mercurial planet; that is to say, a planet interior to the orbit of mercury. Such planet interfor to the orbit of mercury. Such a planet was predicted by the great natronomer, Lo Verrier, on purely mathematical grounds; and his success in locating the planet to which his name was given by a similar calculation, induced scientists to keep a sharp lookout for the hidden orb, which owing to its close postulaty to the sun, can only be seen under circumstances and conditions of acceptional difficulty.

The prominences which were such a marked feature of former eclipses were not seen to

feature of former colleges were not seen to such as extent as formerly.

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· Popular Education.

The resiling of the life of Edison, published in the Psysher Science Monthly for August, cannot fail to cause thoughtful minds to reflect whether the expensive prescribed courses of study at present in vogue in colleges and unversities, or then high-achools, are based upon ouncil common sense. Are not these courses in academies and high-schools, are based upon sound common sense. Are not these courses of study, marked out beforehand, in the nature of a groove, to which all milested to the made to fit as accurately as possible? And is there not the frequent possibility, if not the frequent danger, that to obtain this accurate fit much valuable stuff must be cru away to make rooten. for useless material?

One cannot fail in reading the lives of great men to be struck with the fact that those who have ploughed the deepest furrows and left the most lasting landmarks upon the surface of hu-man history have been men who never were most batting historities upon the leafthest on the completil for endering to any curriculum. If they airly would help always the properties of the completil for endering the control of t

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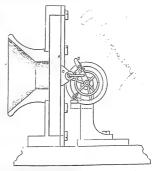
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English Mechanic Ting 2. 1878 THE PRONOMOTOR

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A NEW MERCURY TELEPHONE

A NEW MERCURY TELEPHONE

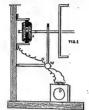
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in vibrations that correspond with those in the disk of the seeding instrument.

M. Hedquet's apparatus, nithough extremely simple, is in its present form quite unhandy, and the invenior is now en-gaged in experiments with M. Lipunan, with a view of,

rendering it more portable. He is confident that his mer-cury telephone will, when perfected, become which used, not only as a telephone, but for ordinary telegraphic pur-poses. It is proper to indi this the successful phenomean observed here are precisely analogous to those that occur in Bell's telephone.

Billion tons are



THE PHONOSCOPE No. 1.

ing tube, which consists of several parts, viz.: E, the mouth of the tube, F, a thin brase displaragen, upon which, on the side opposite to E, is a the wife of platinum. Contact is made and broken by means of a metal point on the brase



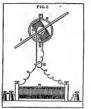
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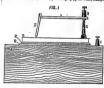
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THE MICROPHONE.

By MR. W. J. LANCASTER, F.C.S., P.R.A.S,

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If the residence is a supple of the supple o DAILY SENTINEL. MARAMIE CITY, WYOMING.

----J. H. HAYFORD, : : EDITOR. Tuesday Evening August 20.

Edison is accused of being the father of Invention. We have no desire to open up a fresh scandal, but if Edison is the father of Invention, it is the duty of Necessity to show her marriage certificate—if she powerses

THE CONTINENTAL GAZETTE AND AMERICAN ADVERTISES.

one.

PARIS, THURSDAY

AUGUST 8, 1878.

We gave last week some account of the recent observations of the celiter in the United States. Since then a telegram has been received confirming the discovery of the planet Vulcan, by the distinguished extremomer. Professor Watson, of Ann Arbor, Michigan. For more than twenty venue the illustrious Leverrier searched for this planet, he having previously stated its existence by his calculations upon the perihelion of the orbit of Mercury. The new star had, at the moment of the total eclipse, a brightness canal to that of a star of the fourth grandeur, which indicate n considerable surface. In the recent eclinse it was discovered for the first time that the temperature fell rapidly during the disappearance of the sun. The direct proof of this important astronomical fact was obtained by the aid of the micro-talimetre, lately discovered by the now relebrated Edison.

VELOCIPASTIC FACISIMES. Henry Louwahery, the discoverer of this new method, which is, we believe, destined to a great future, is a veteran inventor. In the course of his eminerally neeful life, he has taken only no less than seventy-eight patents. Indeed, his only seventy-eight patents. Indeed, his only rival in inventing is, perhaps, Prof. Edison of telephonic, naicrophic, and accophonic fame, who is really an incorrigible person. Mr. Leavenberg's invention is no new. fame, who is really an incorrigible person, Mr. Downsheyer's Investibles-inv, new, clean, and rapid process of reproducing recurring-stillment by presents, almost a recurrence of the producing and the recurrence of the color, color, surface, and in the nearmon vater-terior of the show case of Mr. Loowen-tery may be seen objects reproduced by this new invention, ranging from a sitraw lat to an Enraron vate. Now, find of all, its

New-York Duily Tribung FOUNDED BY HORACE GREELEY.

SATURDAY, AUGUST 24, 1878.

ATTH SUPPLEMENT. SCIENCE AT ST. LOUIS.

THE THIRD DAY'S SESSION. MR. EDISON DECOMES A MEMBER OF THE AMERICAN ASSOCIATION AND READS A PAPER ON HIS IN-VENTIONS—THE MEMORY OF PROPERTURE Thomas A. Edison was cordially received at St. Louis yesterday, as a member of the American Association for the Advancement of Science. He read a puper on some of his inventions. A committee was appointed to take proper action with regard to the late Professor Henry. The tone of the meeting is decidedly in favor of making science popular.

MR. EDISON RECEIVED AS A MEMBER. ANNOUNCEMENT OF THE HONOR AWARDED HIM AT PARIS-IIE READS A PAPER ON SOME OF HIS IN-

St. Louis, Aug. 23,-Mr. Edison was formally presented to the Science Association as a new mem-her by Professor Barker at the general session this morning. Professor Harker said that the time has come when the scientist is no longer the only discoverer; the practical man has found science too slow, and has stopped in and discovered for himself. It gave him great pleasure, he said, to introduce Mr. Edison to the association. Mr. Edison was enthusiastically received. Professor Marsh, in a brief succeh of welcome, said it would be probably the most gratifying intelligence to the gentleman himself, as well as to the anticace to hear that the association had been informed this morning, by a felegram, that the Grand Prize and been awarded at the Paris Exposition to Mr. Edison motion was made and carried that a committee of three he appointed by the chair, to-arrange for a culcy of the late l'redescer Henry. Professors Newcomb and Baith, of Washington, and Mayre, of more and the state of the late A HARMONIOUS AND USEFUL MEETING. MEMBERS PRESENT AND PAPERS PREPARED-RX-CURSIONS IN PROSPECT-EFFORTS TO MAKE

ENOWLEDGE EASY AND POPULAR. ON AN OCCASIONAL COMBINSTONDEST OF THE TRIBUSE. See I. Josiffs, Aug. 21.—The twenty-servedin inselling of this Automota Assentiato for the Advanca-ment of Beleeve Ison in this city this morning at In-dicity, in the classy in the control of the other, in the classy in the control of the con-trol of the control of the control of the state of the control of the control of the state of the control St. Louis, Aug. 21.—The twenty-seventh

Arter the reaction business, the section is married, of the work. Section A under Vice-President Thursday, of the Stevens Institute, Hotoken, and Senton B under Vice-President Grate, of the Buffido Society of Natural President Greek, de the limited Society of Natural-Sciences and into attached to the Equations of Arri-culture at Washington. Preference Function is well-ingway for his innovictic, or scientific entheresting. He to the author of a volume on the "Greetth of the Steam Engine," Simurated with numerous engraving, which will be shortly issued as since of the International Socie-ties. The Computer Computer State of the Computer State 1116 fortice. Professor Transferant is an example. titio Series. Professor Thurston it yet a young man, but, he has made his murk as one of the leading American

ultysicists. Dysicists.
There is not a single member of the recent astronom.

such as the second or to some of the privilege interests of the privilege in the privilege

LETTERS FROM THE PEOPLE THE PARIS EXPOSITION.

THE FROM PRESIDENT WHITE-AMERICAN AUC-DESCRIPTION SPEECH OF JULES SIMON.

to the Editor of The Tribune. Shell I do not think I need make any apology of Smil I do not think I need make any apology or oven chree the pardon of the distinguished writer for sending you tio following extracts from a letter of Frendenw Wilke, of Cornell University. "It is fall of interest, and it must be gratifying to every true America, and to every true oulopted citizen to learn therank that our Republic heat taken in the great Ex-position, beforely in the useful, but as well in the ornamenğil aris. Well ard traly, as President White says, mayour people learn lessons of industrial and financial wisdom from the new Republic of France. But, instead of learning anything, demagogues seem to have "the inside truck," and men without learning, without experience, without common devised system of finance, as well as without any judicious and invigorating public policy, seem to have the load—are taking voters captive, and trying to take all our vast industrial concerns to the devil as fast as possible. "The second sober thought" pray save us-let us hope that it will, Yours truly. JAMES A. BRIGGS.

Brooklyn; Aug. 20, 1878.

* A Paris at procent is more attractive than I have ever known it. The Exposition is really a wast success from every point of view says the feather at You, will be glad to learn that our Americans are carrying of will be find by control that our Americana are courring of a much more than their alase of the great awards. Only much more than their about of the great awards. Only account to the control to the control to the control provides a control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the control to the American copy and industry. One of these expension, the control to the control to the control to the control to the American copy and industry. One of these expension, the control to the control to the control to the control to the American copy and industry. One of these expension, the control to the control to the control to the control to the American control to the control to the control to the control to the American control to the control to the control to the control to the American control to the

some particularly of the Distriction markets, instancing conceptually of the Distriction and the Distriction of the Distriction

You will be lead to know that the Republican forren-near in Frigne scene restly to be causolisted and strengtheers more said more every day. It is carried on-within press, good same, and more this reput for more some of the propile assumday to under this press to the some of the propile assumday to save the press to the contraction of the same than the pression of the pression of the propile assumday to the pression of the pression of layer yields and the pression of the pression of the pression of layer yields and the pression of the

Any man with man be of the graph more than the state of t

Evening Post July 12.1878

EDISON'S PUZZLE.

THE SIXTH AVENUE NOISES.

Meeting of the Minth Ward Jackson Club-A Startling Coientific Theory Something for Thought at Monlo Park-An Aerophonio Music-Box.

The Ninth Ward Jackson Club held a special and secret meeting last evening to con-sider the noise coralened by the running of trains on the Metropolitan Bailroad. The ciuli is mainly composed of old marketmen and residents of the immediate vicinity of Jefferson Market. The chair was taken by Alderman Jacobus, who said: "Gentlemen, we all know the object of our meeting. Let each member beas brief as possible in expressing his viows."

Dr. Lowis said there was no doubt that the noise occasioned by the trains was detri-mental to health, and should be stopped. The question was how to stop it. He did not know, and he hoped Professor Edison would

Captain Welli, of the Gardo Lafayette, who captain went, of the Garno Lamyete, who lives opposite Jefferson Market, said; " Dero vas three mens came in my place and went erazy by dose noises already."

crary by does noises already."

Mr. Kennedy, the lauthor of the Josforson
Mr. Kennedy, the lauthor of the Josforson
Market Court-house, said that his family
auffored considerably from the noise occustoned by the night transition special properties of the propert

Part Collegio, van Charlet Collegio (1998). The collegio (1998) and the colleg

irrom Fourteend's O Thirty-Your 22 stroop: the first control of the control of th collowing recolutions.

Research, That this phanes of this sweetlers to tendered by John Morris for his able and its second by John Morris for his able and its second by John Morris for his able and its research by John Morris for his able and the recollection for the property of the second by John Morris for the property of the second by John Morris for the property of the prope

THE DAILY GRAPHIC TUESDAY, AUGUST-27,-1873.

-Edison is home are not Menio Perk. The Western fellows put up a 300 on bits, and got him to about sta fort-rabble about two hours, when he went find kee-keel it on the head and found that it was unified.



RALLOGNS AND RATTLESNARDS.

LUCION INTERVIEWED IN THE WEST,

LEVEN NATION VARION THE WEST.

The first of the Leven Specifical to an extra the Leven Specifical to t

"Yea, I their hown ord ir., you hereding of the concession of properties of the concession of properties of the concession of properties." While the concession of properties of the control of the contr

stwing-machine, hi's a sort of tuning-fork contriv-

"The company in year a promp or a window, or any or account of the company of the

NEW YORK, THURSDAY, AUGUST 29, 1878. THE HERALD will be sent to the address of

EDISON'S INVENTIONS

What the Professor Has Beer Doing Recently.

THE SONOROUS VOLTAMETER

Renewal of the Efforts to Stop the Elevated Radroad Noise.

Edicon set on the perch of Lie laboratory in heads Park yesterday, sasting in allengs on the eleteresqua-hills and valleys to the distance. He was evidential hills and valleys to the classace. He was evinously deep in theselfs, contracting, purise, the preep ro sails of inseaphuses, surrephones, interophenes and other attacked of fiscals with the oferant, makey or classes of the past, when, on, a Herison pump in the witte of the far West, he pleased the rarged buildoor phot the feature oil. The expressed the final final pump is the final pump in the preep of the final pump in the preep of the final pump in the preep of the final pump. The expressed of the final pump in the preep of the final pump in the pum Haught man broke ats reverse, "I was just steme to go up store," and the young investor, brightening up and picking up a rith that by at fee feet. "Will you come stong?" The reporter followed and scon be was in the

miget of the derive and extent there of science with, In one corner of the interactory the writer saw

serves kernessed lamps attacking an violently that he felt it a dusy to interns the Frotessor.
"Had itsi hat hel hel?" abouted one of Kitson's young men. "Why we know they're amakin', of causes we do. Tant's what we make the carbon but-tons out of. We simps let 'em sanake."

"Yes," said Edison, "that is the foundation of the tentimeter, We let the lamps empty until the chumbrys are black, then we scrape them and presents siot fato a small trotten."

selet into a small betton."

The reporter actionwineged the explanation but
could not help industring small a shopk page 4 sight
would give a tidy housewife.

"Most have yest directed that's real page, Mr.
Edmon 1th saked the reporter. "domesting met abler
than a time of the property."

then a few days." THE BOSOSHER VOLTANCESE. "Here you seen the sonerous voltameter yet?"

answered the inventor. The reporter estrated that the senorous voltameter was not outside the pale of his scientific education,

was as yet octude the pain of the schemins electrons on about for this to the pajest.

Mr. Ethnor ended the bal, and by a detailed a three should be a state of the page of the schedule of the state of the schedule of the state of the state of the schedul

obpoints the invasion's misciplor and gaming on the unicontinguies combination.

"First ideas agrangement. Topic thes strength of inforgraph interior right to a day. It makes you have their strength. This end of the wire you are unixed accessed and day before, it has bubbles rise accessed and in a section, which is magnified by the found. These-place tolder objection is leasterned to the current by place tolder objection he latestary to the current by degrees and the found induced the axes by nound. You take your which and count the same by nound. caused by the hubbles per second. Thus you know how strong your beliary is. Jest try it some time, 'The ratorier processed that the first time he found a bettery lying around without an owner he would thip on a soungeus voltameter and flud out all about it

"That Wasiern questry is a great country," said Ed teen, his face boarding as he thought of his recent

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"The property of the control to the



FOUR HOURS WITH EDISON

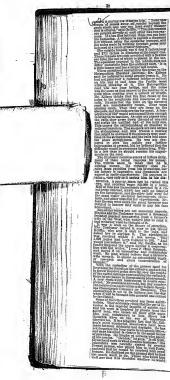
THE GREAT INVESTOR AGAIN REVEL-LING IN HIS NEXT OF LABORATORY.

A Thin Protect Natural Communication Countries of the Natural Conference of the Natural Conferen

that allimates bootblacks or brokers when the that attimates boothness of brokers what they much in a group and begin to kur yach other.
Mr. Edison looked well. His face was broused and lais steal job; stood up like a issuel on a talk of broom corn. I feel testaled the incidents of his trip on the plains, told how he had coaxed. of this stripes the plains, it foll loop's he had exceeded out of Actions and Years with this Last-collection out of Actions and Years with this Last-collection out of Actions and Year with the Last-collection out of the Year with the Santon Collection of Years and Jestica, and found that the town of Hawkins was increas mills from the regol Jaid Rousel owners of the Years with the Santon Collection of The Years with the Ye

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New-Dork Daily Tribune

FOUNDED BY HORACE GREELEY

WEDNESDAY, AUGUST 28, 1878.

THE ELEVATED ROADS.

EXTENDING MEANS OF RAPID TRANSIT. THE NOISE MADE BY THE EAST SIDE HOAD-A NEW INVENTION TO DEADEN THE DIN. . . The noise and annoyance caused by the running of the trains of the New-York Elevated Railroad, on

the East Side, provoke many different degrees of consure. It is claimed that a new invention has been found which will destroy the din.

TRAINS ON THE EAST SIDE. TRAVEL SINCE THE OPENING-DIFFERING COMMENTS
UPON THE ANNOYANCE OF THE NOISE—FOME

FIND IT LESS, OTHERS MORE, THAN WAS EX-PECTED.

received.
Af a nicciding 'potentiary of the Executive Committee of the New Yest Enreade Instituted, which can be a second or the New Yest Enreade Instituted, which considerable the Enthaltic French is a new under enablements by a special committee. The received conditionation by a special committee. The received conditionation of the New Yest Institute of the New Yest Institute of the New Yest Institute of the New Yest Institute of the New Yest Institute of the New Yest Institute of The New Yest Institute o

motion. The exercit postulative was humble to cell before the large control of the deference was themselved in the large. Supplying the deference was the cell and the large control of the best control of the large cell of the la

structure itself.
In the Citton-Exchange the noise of the passing trains in the Cottom Exchange the nodes of the panels giants to be contained by the contained the velocity and the sharely presently, even with all the velocity and the sharely present and the same possibly to the same sharely as the

sucas. In the inspection of samples a steady light business. In insuperiors of the passing was requisite to a correct judgment, but the passing trains constantly threw varying shadows upon their sample tables.

At the Marine Bank, at Posti and Wall-tt., it was

and that the annoyance was not so great as had been extelyated, and not sufficient to drown the rumble of the stages and trucks. At Bude's restaurant and at the office of the Downer Kerosene Off Company, at Feart-st and Malden-lane, the read was said to be very noter, but

the occupants of the buildings expected soon to become necessioned to what was now an unusual mose.

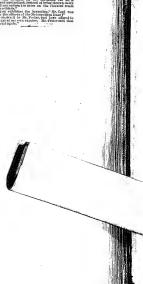
The proplems of the Seventh Ward National Bank, at The problems of the Seventh Ward Aglemai Bank, at Portlet, and Birling-olly, add that the notes was much greater than had been uniterpised by lim. "In front of our middling," he add, "the train run inside of the pil-lars, and the rund consequently forms a perfect bridge, pur like the Metropolitan Tank on Sixthews. When two brains are precisent the name time, as frequently hap-terials are precised at the name time, as frequently hap-

such and the mode consequently forms a particle bridge, or like the three bridges and on the control of the con

ATTEMPTING TO STOP THE NOISE.

THE ALTERNATION OF THE WAY NOT AN ADDAY, NOT THE ALTERNATION OF THE AL THE SOUND WAVES TO BE DRAWN IN A BOX, NEU-

The invention conststs of an air chamber built down from the buttom of the ear to within a few inches of the guard-rail. Within this chargher, which is lined with abund absorbing material, is a fan-wheel, moved by a onceted with a wheel on the car axio. The fan produces a strong current by when the air under it a caught up and discharged through automatic at the sides, or farough vertical chimney at the theorem. "The hight before Kainen went many!", Oatol, "Jakked him about his lovestigation of the Ill and has been discovered between the con-





Phonographic Experiments in South Australia.

Extract from the S. J. Register, July 5th,

Extent from the S. J. Register, Jely 6th.

In this ape of introducing many people relaxed to the control of the

lost

THE PHONOGRAPH IN SOUTH AUSTRALIA.

EXTRACT PROV. S. A. Advertiser, July 6th, 1878.

Mr. A. W. Dabble has worthily failured up the work at a deplanta planer in his calculation as a start of the plane in the calculation of the start o

regarding title, and it the store time stories regarding title, and it the store time stories regarding the grant and the stories. It is desirable to grant and the stories of the store of

DU LUNDI 12 AOUT 1878.

Exposition universelle de 1870 Les expériences de téléphone, qui ont cu lieu ces jours deroiers au Champ-de-Mars merlient do fixer l'attention: On en avait bien juge ainsi des le premier jour. car nous avons remarqué parmi l'assistance qui so pressail dans le salon du pavillon de la preses plusieurs membres de l'Insti-Jul. M. fo directour des postes et léfégraphes, les chels de cabinet de quelques ministères, des fonctionnaires supérieurs de l'administration des lignes telegraphiques, des generaux, des officiers d'étatmajor, les direcfeurs des principaux journaux de Paris un grand nombre Journaux de Paris; un grand nombre d'électricions, de savues et d'ingé-nicurs; ces expériences out montré gans réplique que le téléphone des plus-seulement un festiument de physique curioux, mais bien un instrument pratique permettant de transmotiro la voix à des distances considérables avec toutes ses qualités essentielles.

Les expériences étaient faites du Champde-Mars au bureau télégraphique de Versailles, avenue de Paris, soil à una distance d'environ 18 kilomètres. Les télédistance d'environ 18 kitomètres. Les tété-phones essayés simultanément étaient les téléphones américains de Gray et d'E-dison. Ces deux instrumens offrent phacun leurs avanlages respectifs; Le 14léphone Gray fonctionne sans pile; c'est un courant d'induction qui l'anime. Son porte-voix a été ingénieusement combiné, Ce "n'est" plus un simple spetit :: entonnoir aboutissant à la membrane métallique vibrante; le son pénètre par ideux canduits distincts qui bifurquent jusqu'à deux membranes vibrantes disposées symétriquement. Cette disposition multiplie l'effet moteur de la voix; aussi le son est transmis avec une certaine intensité, Mais ce qui frappe surtout les personnes habituées à se servir du téléphone primitif, c'est la correction remarquable apportée à la transmission du timbre et de l'articulation. La voix n'est plus nasildarde ni inciallique. Quaque avilabe ar-rive à l'oreille distinctement; l'articulation est parfaitement nette, On reconnect sans hésitation la voix d'une personne qui parle inême très bas.

La sonnerie d'appel est produite par un appareit d'induction, sans qu'il soit nécossaire d'avoir recours à une sonnerie électrique ordinaire. On tourne une petite manivelle, et à la station d'arrivée la sonnerie prévient qu'on désire parler. On s'applique un cornet sur chaque oreille et l'on cause à demi-voix absolument comme au coin du feu. La conversation so fait si facilement qu'on a quelque peine à s'imaginer de prime abord que l'interlocuteur n'est reellement pas dans la pièce volsine

Nous pensons que le téléphone Gray rendra de véritables services à l'art militaire, aux transmissions urbaines et à l'exploitation des chemins de fer et des mines. Des aujourd'hui, et sans aucune modification de notre organisation télégraphique actuelle, il peut devenir un auxiliaire puissant de la télégraphie.

Lorsque les communications téléphoniques doivent se faire par l'intermédiaire d'une ligne télégraphique à fils multiples, il nourrait arriver que le téléphone Gray fot dérangé dans son fonctionnement par les phénomènes d'induction qui surviennent en parcil cas; la transmission pourrait devenir capricieuse et manquer de nettelé. C'est dans ces circonstances que le téléphone Edison est appelé à rendre à son tour de véritables services. lei, la portée de la transmission n'est plus limitée, etl'induction des fils de la ligne les uns sur les autres n'a plus d'action prépondérante.

Le téléphone d'Edison fonctionne, en effet, à l'aide d'une pile ; le courant électrique dont on se sert peut être rendu aussi energique qu'il est nécessaire ; la voix, en faisant vibrer la membrane de l'instrument, n'a plus pour but de créer le courant, mais uniquement de faire varier l'intensité du courant d'une pile. Le courant de la pile passe à travers une petite baguette de charbon qui appule sur la membrane. Lorsqu'on parle à portée de l'appareil; la membrano vibre: le contact avec le charbon varie, il est plus on moins parfait, et par consequent le courant passe plus ou moins bien. Ce sont ces variations qui retentissent sur la membrane de l'appareil d'arrivée et permettent la reproduction de la voix. Le téléphone Edison transmet

la parole avec une sonorité très grande. Dans les expériences du pavilion de la presse, on avait reuni ensemble les deux systèmes Gray et Edison pour obtenir le maximum d'effet. L'appareil Edison transmellait; l'appareil Gray recevait. On avait ainsi les avantages de la portée réunis à ceux d'une articulation excellente. Cette combinaison des deux téléphones donne un résultat parfait qui a vivement impressionné l'assistance:

Dans le salon irès vaste du pavillon de la presse se trouve, à l'une des extrémités, un plano; les téléphones étaient installés. à l'antre extrémité, soit à environ 10 mêtres. Quand on touchait le piano, les auquents "Me Versailles, percavalent tres bien les sons et reconnaissaient parfaitement le morceau. Nous enfondions à notre tour les bravos.

On peut se dispenser de parler directe ment dans le porte-volx du téléphone Gray pour se faire entendre. Nous avons soutenu une conversation de quelques minutes, du Champ de-Mars à Versailles, en parlant simplement a un metre devant un grand cornet de papier ajusté sur le porte-voix. Le cornet rassemblait le son, et la voix arrivait distincte an burcau de Versaitles, L'expérience est saisissante.

En somme, ces essais mettent hors de donte que la combinaison des téléphones Gray et Edison rend facile et pratique la transmission de la parole à des distances deia considérables. C'est un fait important. qu'il était utile de signaler au public intéressé. Déjà, à San-Francisco, les communications téléphoniques, de quartier à quartier, sont devenues générales. Il est vraisemblable qu'elles sont appelées à prendre en Europe un développement analogue dans un avenir plus ou moins prochain.

HENRI DE PARVILLE.

ENGINEERING.

[Auo. 16, 1878.

ANOTHER TELEPHONIC DISPUTE. ANOTHER TELEPHONIC DISPUTE:
White Mr. Edition and such allers as becaused to bis adds among the inters ignorant or itea acrupation of the such as the excessionates of this new difficulty. In the most is recommended to the control of the control of the control various experiments that had been made up to that that with the telephone, concluded his reason that the control of the control of the control of the mole-cular variations determined in the saspest and in-graphic control of the control of the control of the resulting from the undulatory current tensmitted, and induces of successive varying magnetic impulses? Treating from the undulatory current tensmitted, to telephone the control of the control of the control on the last, a reaction which permitted articular in a memory for the linguist defect of its receiption in a memory for the linguist control of the plant, in Artil, 1373, dispitaled this theory, designs in a memory for the linguist Andersy of Bel-gium, in Artil, 1373, dispitaled this theory, designs in a memory for the linguist Andersy of Bel-gium, in Artil, 1373, dispitaled this theory, designs in a memory for the linguist Andersy of Bel-gium, in Artil, 1373, dispitaled this theory, designs in a memory for the large of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the con-trol of the control of the con-trol of the con-trol of the control of the con-trol of the con-trol of the control of the con-trol of t termined by the effects of attraction. To this me-moir M, du Moncel replied by a noto in which he showed that according to many experiments made by a number of men of science amongst others

IROSEIT K.C., a telephone willion in dispirant could not only reproduce nounds, but error articular on only reproduce nounds, but error articular on only reproduce nounds, but error articular on the country of the co by asking how it could be reasonably admitted that a current not stronger than that of a single Daniell element, having traversed 10,000 kilomotras of current not stronger than that of a single Daniell element, having traversed 10,000 kilomotras of devention only on a Thomson guivanometre, could have power sufficient to vibrate mechanically and by attraction an iron disphyragen like that of the telephone. To this note M. Navez repide dya now memorir, in which he stated that he did not deny the existence of the effect discovered by Page and studied by De la Rive, but he did not believe that a telephone without a diaphragm could reproduce ar-ticulate acume, and he maintained his view of the vibration being due to the attraction of the diaphragm.

M. da Messeel la reply to this, sald, that as the property of the sald, that as the property of the control of incoved, that this would not affect his hypothesis, seeing that it was impossible to conserve of a vibratory motion without a diplacement of surface in both directions. M. Navez again replied to this note, and his reply is highly interesting from a memorar of experiments he cites. His consistence of the contract of t

when the receiving instrument works without a liaphragm.

2. Under exceptional conditions of telephonic pho-

2. Under exceptional conditions of telephonic phonation and austrition the anomal of the humans to can be repredered by a servicer without a plate to the telephonic phonation and the phonation of the condition nly in the supprises of on the vibrating surface, on the vibrating surface, of the plate are trans-led, and are produced by the variations in the at-tracts, force of the bar and the reactions due to

traches forced the part of the plate of the plate of the plate.

In answer to this last communication M. da Moncel has addressed a note to the Academy in which he deals very fully and ably with the whole question, and brings the discussion up to the present date. This reply will be found on page 42.

ERNST WERNER SIEMENS.

Jarmaine demance aug 15: 26

Account 15, 15/8.]

THE TELEGRAM

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refule JOURNAL.

The interference was as unknown region. We do it possible to be received from the supplication of the possible to the control of the supplication of the possible to the poss

THE INVENTION OF THE MICROPHONE SINCE the name of Sir William Thomson has been imported into the controversy as to the authorship of the microphone, we re-publish the following letter which that gentlemen has addressed to our

contemporary, No "THE MICROPHONE "The pleasure with which those beautiful discoveries and inventions, the telephone, the phonograph, and the microphone, have been appreciated by the world, has been unhappily, and I must say I think unnecessarily, marred by one of the most dis-agreeable things that can be thrust on the public a personal claim of priority, accompanied by accusa-tions of bad faith, especially when made against any one of whose name and fame the public has come to cel concerned

"Before troubling the public at all with such a matter, Mr. Edison might surely have reasoned out his claim with Mr. Precee, with whom he had been from the beginning in correspondence, or he migh have written immediately to public journals, calmly pointing out the close relation between his own carbon telephone' and Mr. Hughes' subsequent microphone.' The scientific public could then have calmly judged, and would have felt much interest in Judging, how much in common, or how much not in common, there may be in the physical principles concerned in the two instruments. violent attack in public journals on Mr Preeco and Mr. Hughes, charging them with 'piracy' and 'plagiarism,' and 'abuse of confidence,' he has rendered it for the time impossible for either them or others to give any consideration whatever to his claims. Nothing can be more unfounded than the accusations! Mr. Preece himself gave, at than the accusations! Mr. Precco himstell gave, at the Plymouth meeting of the Ilritish Association last August, a clear and thoroughly appreciative description of Edison's carbon telephone, and pub-lished in the printed reports of his lecture, which are the printed reports of his lecture, which results show the proble polarists. The beautiful results show the problem of the present year by Mr. Hughes with microplanes were described by binned! I mile his microplanes were described by binned! I mile his microplanes were described by himself in such a manner as to leave no doubt but that he had worked them out quito independently, and that he had not the disjoint interior of reproperting my credit due to the factor of the control of the control of the control person. It does seem to me that the physical principal person, and the control of the control of the control person of the control of the control of the control and that it is the same at that used by M. Clernor and that it is the same at that used by M. Clernor and that it is the same at that used by M. Clernor person of the control of the control of the control tally which he had given to M. Lives control to the control of the control of the control of the same person of the control of the control of the control of the same person of the control of the control of the control of the same person of the control of the control of the control of the same person of the control of the control of the control of the same person of the control of the control of the control of the same person of the control of the control of the control of the same person of the control of the control of the control of the same person of the control of the control of the control o ndependently, and that he had not the slipressure between two conductors in contact pro-duces diminution of electric resistance between

"I cannot but think that Mr. Edison will see that "I cannot but think that Mr. Edison will see that he has let himself be hurried into an injustice, and that he will therefore not rest until the retracts his accusations of bad faith publicly and amply as he

"Yacht 'Lalia Rookh,' Cowes, July 30,"

From an article entitled, "Une Querelle a propos du Microphone," by M. A. de Moutlambert, which appears in Echetricist for July 20, we translate the following instructive passages:—"Before assing to the microphonic arrangement, which is the bone contention, we would draw the reader's attention to the two following points which, as will be at once seen, ought to be taken into serious consideration. First, property which certain conductors, and particuher projects arbon, possess of varying their con-ductivity with pressure, was known a long time ago. M. Clérac, of the French Telegraph Administration, had applied it in 1866 in constructing a cheap rheostat, formed of a tube filled with plumbago of powdered carbon, in which a piston was moved by a screw. By working the screw, the resistance of the circuit in which the tube was intercalated was considerably increased or diministical, Moreover, M. du Moncel, making, in 1856, some researches on the resistance presented by the contacts of electric keys, or contact breakers, had proved that the intensity of currents transmitted by their means paried with the leaves of teachers. outenity of currents transmitted by their mean varied with the digree of presume exerted between the two pieces in contact. (See Vol. 1., p. 236 of 2nd ed. of M. du Moncel's Traité des applications de l'électricité, 1836). Further, he recognised this property in 1872-1836, when making experiments upon the conductions of historical solutions. ductivity of divided conductors, and announced it is several memoirs presented to the Academy of Sciences since that time. Lastly, M. Pollard, in osciences since that time. Lastly, M. Pollard, in constructing a telephone, with a pencil of paulosgo, simply leaning against the diaphragum, has shown, in December, 1877, that the variation of conductivity with pressure held equally well for hard carbonised bodies as for those soft charcoals exclusively em-ployed by Arr. Edison.

"The claim of Mr. Edison relative to the property possessed by the microphone of serving as a ther moscope proves that he has not at all understoo moscope proves that he has not at all understood the question. In the first place, Mr. Hughes has never pretended to the invention of a hermofile, as Mr. Edison states, but merely to a thermosyle, and that thermoscope is knot upon a principle dimetri-cally ophysite to that or within the universitanter of Mr. Edison is founded. In the latter the effects of Mr. Edison is founded, In the latter the effects of the region of the property of the state of the state of the state of the effects of the state of the state of the state of the state of the state included the increase of the state on a disc heat are indicated by increase of pressure on a disc of carbon, produced by the dilation of a body sensitive to the heat rays which fall upon it. In the apparatus of Mr. Hughes, there are several pieces of carbon enclosed in a quilt, and touching each other so lightly as to cause a somewhat unsteady dellection on a sensitive galvanometer, when a current is sent through them. Now, a minute increment of heat has the effect of increasing in a high ratio the resistance of the contacts, and the deflection diminishes in proportion as the heat i increased. This phenomenon has been studied since 1875 by M. du Moncel, who has proved that since 1875 by at. Moncel, who has proved that in middling conductors, of the nature of carbon, pyrofusite (peroxide of manganese), plumbago, and even metal filings, the first effect of heat is to diminish the conductivity of them, but that if they are lecated above 100° C, the reverse effect taket when mad the are heating to the provided they are place, and the conductivity becomes greater, a fatt which he attributed to the dilatation of the particles of the body, which produced an effect analogous to that which would result from an increase of pressure. (See M. du Moncel's Memoir in Comptes Rendus,

Nov. 2, 1875). Mr. Edison is therefore mistaken, and this claim of his has no foundation whatever."

The passage from the Traile det applications de Pelestricité above alluded to, runs thus:—"A very curious fact, and one which appears to be at first sight, in contradiction to the received theory of electricity, is that the greater or less pressure between the contact pieces of interrupters, influences considerably the intensity of the current which traverses them. This often results from the studs of the key not being clean, but it may also be due to a physical cause as yel poorly appreciated. One thing certain is that with keys, in which the moveable contact piece is urged by an extremely feeble force the current is often so weak that it fails to effect the electric reaction expected from it."

Apropos of this interesting extract, we (the

AUGUST 15, 1878.]

TELEGRAPHIC JOURNAL) may point out that it is within the experience of all practical electricians and operators that a firm, do nite contact is requisite in testing or signalling, to give a steady and good result on a sensitive galvanometer or receiver. A slow and gentle coinfluence the current. Soon after discovery of the microphene, it occi the two contacts of an ordinary signa. key might form a more or less sensitive mk. some at a certain intensity of the pressure exerted most them by the hand of the signalling clerk. The researches of M. Du Moncel corrolorate this view. If it be correct, the key when in a microphonic state, would transmit incropionically part of the jar of the jar wibration produced by the shock of closing its contacts. We may, therefore, reasonably look for a perturbation in the rise of a current flowing through a key in the act of being closed; and this perturbation. tion will necessarily vary with the mode in which the contacts are produced; a feeble and slow contact causing a different disturbance to that from a smart decided contact. The truth of this supposition decided contact. The truth of this supposition might be tested by employing a telephone as the interpreter of the current, as the perturbations will be very delicate. The question is not without its practical importance, since if it be true, the superiority of mechanically effected contacts over band contacts in the tried, avening the at least will superiority of mechanically electrical experiments at least, will be apparent; and it is not unlikely that some of those experiments hitherto made on the flow of an electric current into a wire or cable may have to be verified again or corrected.

In an interesting communication to the French Academy of Sciences, M. Du Moncel himself has described the results of his early and later researches described the results of his early shall hate residents on the variation of resistance of contacts and imperfectly conducting bodies under pressure. From this it appears, in addition to the above facts quoted from M. Montalambert, that M. Da Moncel abo to the state of the control of the state of the control of the state of the control of the state of the currents. He was led to construct these by the discovery which he made in experimenting with brass, iron, platinum, and carbon conductors, that the differences of intensity of the current increased proportionately as the bodies employed increased in desistance. This fact he alterwards (in 1872) remonstrated, when he showed the variation and the contract of the con stesistance which wood, charcoal, and coke in a fine state of division could undergo. He then noticed that these subdivided conductors had a less or greater

resistance, according to the more or less bright condition of the metallic particles, and the greater or condition of the metallic particles, and the greater or less degree to which they were concentrated round to electrodes inserted into them.

Touching M. Clerae's researches in 186s, M.

Touching M. Cléme's researches in 1865, M. Du Moncel also cites the report of M. Zetriche on the Visona Estibilition of 1873, published in the Visona Estibilition of 1873, published in the Jerusal Teigraphique, for Pebarara 25th, 1874.—

"As regards rheostats, the history part of the exhibition contains, oesides the history kinds, graphite rheostats can 1855, on 1855, on intermediate stations to / the line, &c."

> THE MICROPHONE . .AY

By Profs. EDWIN J. HOUSTON the Philadelphia Cents ad

IMMEDIATELY after the announced by Prof. Bell of his remarkable invention a articulating telephone, we proposed ... of his remarkable invention telephone, we proposed ... number of of relaying this instrume different arrangement exceedingly feeth the receiving telepu-successful. The diowing to the 7-1 m were very ever, of the inexp happily afforded us to problem at which we In our application congaged. relaying of the tele, one, microphone to the . The microphone three small pieces of an inch in length. ng about § of are arranged Prof. Hughes, exactly as in the as is sharpened viz., one of the p . cavities neo the ends of the two --- nown in fig. 1. The two carbon supports on the circl piece are comented at their ends directly to the plate of the

The microphone so constructed is placed in the The microphone so constructed is placed in the new circuit in which it is desired to repeat the message originally transmitted. The method of its operation is crident. The slight movements of the displaragm of the receiving telephone, which are, in fact, so slight as to render them almost impossible of detection by mechanical means, are nevertheless of detection by mechanical means, are nevertheless and the slight of the means of the slight of th of detection by mechanical means, are nevertheless at once recognized by the nearvellously sensitive microphone, and are repeated in the new circuit as variations in the intensity of the electrical current traversing it. The message so relayed or repeated, for it is evident that the instrument can be used about 15 m Johanne or remote mesh to dillu-

Owing to the extreme sensitiveness of the microhone, it will be necessiry, in the practical applica-tion of this instrament as a relay, to carefully shield it from all extraneous sounds, which, weak though

for it is evident that the instrainent can be suched as a relayer or a repeater, may be either received at once by a telephone placed in said circuit, or may be negative posted in a new circuit. By this means we believe that the distance to which a telephone message can be transmitted will be very greatly increased.

they may be, are, nevertheless, very loud when compared with those which would be produced by the feeble movements of the plate of the receiving telephone. This may be obtained in practice in several ways, as, for example, by placing the micro-phone relay in a box with double or trebbe hollow wells lined with rotton wood or some either new walls lined with cotton, wool or some other nonhomogeneous material, or by sinking the instrument in a nit under ground. We have found but little difficulty, however, in the trial of our instrument over a city line of some three miles in length, of obtaining the quiet necessary for the working of the instrument, although the latter was placed in a large room in the MO . I story of a building facing a public thorous; , and the time of trial was shortly after midday.

slightly inclined. In this position more force required to move the upright piece, and so cause to vary the electrical resistance. In all the micr phones that we have experimented with when the upright piece was held nearly vertically, whispers of other faint sounds were distinctly tran the voice of a person standing a few feet from th instrument, and speaking as in ordinary conver-tion, caused such a rattling of the receiving instr ment as either to render the sound unintelligible greatly confused. In all such cases, a certain inc nation could be obtained, varying slightly in each instrument, at which the rattling of the instrument entirely disappeared, and the sound was distinct and loudly transmitted.

We have measured the resistance of a micro phone, in which the moveable piece was composed of a piece of carbon about Hinches long and Jinch square, and first that when placed in an upright position it has a resistance of about 50 ohms, varying, however, in a marked manner, with any sound The same instrument, when turned at an angle of about 400 from the vertical, was found to have its resistance diminished to about 25 oluns.

It may be mentioned, as an interesting fact in regard to the microphone, that when the upright piece is placed in the position of its greatest sensitiveness, and a moderately loud sound is made near it, although such somal is only transmitted as a confused rattling, yet its resonance can, in most cases, be distinctly leard. This is probably the cause of the peculiar ringing sound heard when the microphone transmits mere noises, such as those produced by a person walking.

Mebieto.

The Speaking Telephone, Talking Phonograph, and other Novellies. By Georgie B. Prescorr. Fully Illustrated. New York: D. Appleton and Company.

THE object which the author has had in view in preparing this work, as stated in the preface, has been to furnish the public with a clear and accurate description of the more recent and useful improvements tion of the more recent and useful improvements in electrical science, and more particularly of the speak-ing telephone. Mr. Presont has shown himself thoroughly competent to attain this object, and has produced a work which is a most useful addition to the litt of personal of the stimulpher of changing addition. the list of records of the trium has of electrical science, especially of those won in America. The amount especially of those won in America. The amount of knowledge of electro-teeplony which has been gained may be gathered from the fact that 300 nages in Mr. Prescot's work scarce suffice to deal with the subject. Every pains have evidently been taken to make the information given as com-

plete as possible.

The latter portion of the work deals very fully with quadruplex telegraphy, showing every conceivable modification of the principles involved for working forked circuits, and for "repeating," &c. The ingenious compound-relay of Mr. Geritt Smith, to which the success of quadruplex telegraphy and its modifications is mainly due, is conspicuous and its modifications is mainly due, is conspicuous in all these arrangements. The claspier devoted to this subject terminates with a description of the ingonious electro-motograph of Mr. Edison. A chapter on Call Bells, and another on the Electric

Light, in which a considerable amount of useful in-formation is given, concludes the work, which we can heartily recommend to our readers.

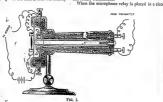
Notes.

THE TELEPHONE.-Under the American patents some 14,000 telephones have, during the past year been installed in the United States, and are being rented at an average rental of Lto per ann.; and fresh orders are being received at the rate of 1,033 sets per

We are glad to observe that a notable reduction in the price and rental of telephones in England has been made by the recently organised Bell Telephone Company, Cannon Street. The former suicidal rates charged for the use of telephones in this country was a matter of regret to all acquainted with the subject. Make hay while the sun shines" should be the motto of successful inventors; and, as even the telephone may be improved upon or supersoled, it was felt that Prof. Bell was losing the harvest which his genius and labour had carned for him. Single telephones for experimental lecture purposes are now sold at £2 a piece; a pair of domestic telephones with battery, call bell, switch, and 50 yards of wire at £5 105.; a pair of business telephones with nuxiliary apparatus and 100 yards of wire at £7 10s.; mining telephones at £15. Higher styles of telephone than these are charged for at various rates up to £20. There ought to be a wide field for the local use of the telephone in this country, and we are certain that nothing but the high prices hitherto charged for them has stood in the way of their rapid spread.

TELEPHONE CALLS.-In M. Alfred Niaudet's call, the ordinary telephone is transformed into a Reis' make and break telephone, by pressing a button in the telephone, and the voice is used to interrupt the circuit. In Mr. E. Conrad Cooke's, a wheel, with a milled rim is turned by hand, and a spring contact rasping on the rim causes an intermittent current to flow through the telephone. Mr. Edison also constructs a call by arranging a pivoted lever with one end resting lightly on the disphragm of the telephone, so that when an intermittent battery current comes from the other station, the lever will dance up and down on the diaphragm and make a dramming sound. The latest call is that of Mr. A. Le Neve Foster described in the Journal of the Society of Arts, August and. It consists of an electro-magnet with a vibrating armature or read, which makes contact with two opposite contacts alternately like the tongue of a relay; and a local battery and key or press-batton. The battery is connocted up to the armsture on one hand and to one of the sole contacts of the key on the other; the electromagnet is connected up between the upper armature contact and the line; the lower armature contact is to earth, the lever of the key is to line, and the other sole contact of the key is to the telephone. When the key is at rest the line is to earth through the telephone, and speaking can be carried on by telephone; but by depressing the key, the telephone is disconnected from the line and the call substituted for it. The current from the local battery traverses the electromagnet by way of the upper contact and the armature, and traverses the line to the distant telephone. The renalure vibrates under the attraction of the electromagnet and interrupts the circuit so as to make the line-correct intermittent.

THE Sainte-Etienne Colliery Company of France







The microphone, when preperly contrasted, has a greatest sensitiveness when the price of carbon and the preperty sensitiveness when the proof carbon for the preperly sensitiveness of the property of the pro The microphone, when properly constructed, has



Fig. 3.

whose resistance is considerable, as, for example whose resistance is considerable, as, for exampon, the end of a distant station, we increase the sen-tiveness of the instrument by attaching a number of minute micropliones to the receiving disphrage as shown in the figures. These may be connected in series, as in fig. 3, or in multiple are, as if fig. 2.

Since the variation in the electrical resistance the microphone depends mainly on the upper co-tact of the loose piece with its support, an increase delicacy may be obtained by attaching this suppor-directly to the middle of the diaphragm of the receiving instrument with the diaphragm of the receiving instrument, while the lower support no not necessarily be attached to the diaphragm-

have six telephone lines working, the longest extending and Thomson, which we illustrate in this number, nearly four miles. Conversation is carried on at the declares it to have been devised by him over a m rate of about 100 words per misute. The telephones were made by Briguet, and cost 12s, 6d, each,

Accosing to Chin Hoo, in the Pekin Guertte, the telephone, or, "Thumthsein," was invented in China in the year 968 by a philosopher named Kung Foo Whing. This announcement will satisfy the self-complacency of the Celestials without disturbing the equanimity of the western nations. All honour to Kung Foo Whing, whose cuphonious name seems made for the telephone.

M, no Monces recently drew the attention of the French Academy of Sciences to the fact, that if any part of the telephone circuit wire be seratched, a feeble grating sound will be heard in the telephones. This sound becomes very marked when those parts of the wire, close to a telephone itself, were scratched. The effect was not merely mechanical, for it ceased when the current was interrupted. This peculiar fact throws light on the clamour of confused sounds heard in telephones connected in circuit with ordinary telegraph lines, some of which sounds were evidently not due to induction from the neighbouring lines.

THE MICROPHONE. - Naturforscher, the German Nature, mentions another inventor of the microphone -a M. Lüdgte-who described a microphone made of two metal plates in contact, a battery and bell telephone, to the Berlin Physical Society in April last. Professor Hughes has evidently won the honours of the discovery "by a neck,"

M. DUCHETET has applied the prosmatic tube vibration-transmitter employed by M. Marey in physiological experiments to the microphone. This consists of a flexible india rubber pipe connecting two small drums, or closed air chambers with convex lens-shaped membranes, so that when one of the membranes is pressed against the pulse, the other membrane will pulsate the air transmitted air vibrations. M. Ducretet makes use of it by resting one of the lens-shaped membranes upon the upper contact of a pencil microphone, leaving the other drum free to be applied to the pulse, the lengs, heart, or other organ of the body. This has been called the stethescopic microphone,

PROFESSOR II COMES is of opinion that the microphone shows the electric current to be a molecular vibration, which becomes manifest when the molecules of the conductor are free to move by reason of the feeble contact produced under the influence of a very light pressure between two or several parts of the conducting

Ms. Entson, has we believe, publicly claimed the microphonic repeater, or relay of Professors Houston

ago, and published in the Journal of the Telegra July 15, 1877, and the TELEGRAPHIC JOURNAL abo the same time. Mr. Edison doubtless refers to I Pressure Relay. See TELEGRAPHIC JOURNAL, P. 14 Vol. 5, July 1st, 1877. COUNT DU MONCEL makes a microphone for trai

mitting speech, of a box lined at one end with zine an at the other with copper, and containing a layer of fragments of gas carbon steeped in water,

THE microphone is another marvellous invention By it the faintest sounds are magnified to the dimensions of a thunder-clap. With the microphone a farmer can hear a potato-bug coming down the road a quarter of a mile away, and can go out with an axe and head it off .- Danbury News, U.S.

PROFESSOR W. F. BARRETT has pointed out that the term microphone was first used by Sir Charles Wheat stone to designate a mechanical contrivance of his fe magnifying small sounds. It is fully described in th-Quarterly Journal of Science, Part II., 1827.

THE PHONOGRAPH,-In the "Connexion of the Physical Sciences," Mrs. Mary Somerville wrote some forty years ago: " It may be presumed that ultimately the utterence or pronunciation of modern language will be conveyed not only to the eye, but also to the ear of posterity. Had the ancients possessed the means of transmitting such definite sounds, the civilized world might have responded in sympathetic notes at the distance of many ages," Sir Charles Wheatstone and Sir David Brewster also joined in the expectation, "that before this century is completed, a talking and singing machine will be numbered among the conquests of science,"

In that singular romance, Contarini Fleming, Lord Beaconsfield argues at some length that the days of metrical poetry are numbered; that it was a product of the ancient times before the printing press, when poems were sung or recited, not read, and that it would vanish before long after the bards which gave to it birth. Mr. Carlyle and many other eminent writers hold a similar faith. But the phonograph has falsified this doctrine, and the beauty and music of words will still be worth preserving.

THE phonograph has recently created some sensation in new York by repeating before a large audience one of the famous solos of Levy, the cornet-A-piston player. All Levy's most brilliant execution was faithfully reproduced,

PROFESSORS FLEENING JENKIN and J. E. EWING continue their experiments on vowel sounds by means of the phonograph. They obtain current curves representing the path of an air particle in sound waves from the phonograph record, by a multiplying lever arrangement and marker similar to that used in Sir William Thomson's Syphon Recorder, Curves of " visible speech " 400 times the size of those imprinted on the phonograph foil are thus obtained. Touching this subject, the American Journal for July, gives a full account of an ingenious method of Professor E, W. Blake Brown, University, U.S., for recording articulate vibrations by means of photography.

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Mg. Edison has been investigating the constancy of the phonograph marking with a view to reading the record by sight; but although a fundamental form for each syllable or articulated sound doubtless exists, it is difficult to get it freed from what may be called accidental influences. For example, the same sound uttered by different persons gives a different form of indentation, as also does the manner in which it is spoken, or the distance from the diaphragm at which the speaker's mouth is placed, or the force with which it is uttered, or the speed at which the barrel is turned. If the hand be pressed on the cheek while speaking, a different character will be given to the rut in the foil. Vowels are little liable to these variations as compared with consonants.

THE researches now being made by help of the phonograph and phonautograph, into the vibrations of paonograpa and paonautograpa, and the visitod of speech, and the visible form of sound waves, should result in a typical or general form, and Mr. J. Menro suggests that phonographic type should be east of all the phonographic syllables used in speech, so that a phonograph matrix might be composed as a printer's page is now composed. With these phonographic characters there would be no need to speak into a phonograph, and multiply the record by electro-typing (unless individual peculiarities of speech were to be perserved), since the type could be set up mechanically. In this way very powerful phonographs, giving load articulations of what may be called ideal speech, would be practicable.

THE ELECTRIC LIGHT .- We publish in this number an account of Rapiell's electric lamp.

Ir is said that the thirty-four Jablochkoff's electric candles in the Avenue de l'Opera, Paris, are costing £20 per night. The light, however, is more than sufficient for the purpose. Over 300 candles are lit nightly in Paris.

THE different kinds of electric light are now fairly installed at the Paris Exhibition. As many as eighteen different lamps are on view, exclusive of Jablochkoff's

ACCORDING to L'electricité, the Paris Gas Company has published in several finantial journals an article

on the alarm caused by the progress of the electric light, intended to reassure the shareholders of gas mpanies. The article contests the possibility of substituting the electric light for gas in cities, and concludes that the gas companies run no danger. Energetic efforts are also being made to develope the use of gas for cooking and heating. Meanwhile the splendid lights of Lontin, Siemens, and Jablochkoff steadily burn on, shaming the rows of sickly and feeble gas lights wherever they are seen beside the latter. Even so will truth outshine error, although error be supported by millions. A visit to the Avenue de l'Opera, Paris, just now, is the best possible argument against the inspired article of the Parisian Gas Company.

THE learned Abbé Moigno, director of Les Mondes, has suggested to M. Giffard, the English arrenaut, the desirability of making several nocturnal ascents in his giant captive balloon at the Paris Exhibition, in order to determine the laws of visibility at a distance by means of an electric lamp placed under the car.

We learn from the Polytechnic Review, U.S., that the Telegraphic Supply Company of Cleveland is so crowded with orders for Brush electric light apparatus, for the illemination of mills, depôts, factories, &c., &c., that it has been compelled to run day and night, and is now arranging for a factory four times the capacity of its present one.

An experimental trial of Lontin's electric light was recently made at the Galety Theatre, Fromthe results obtained, there would seem to be good reasons for believing that the expectations of those who have introduced the nevelty to the metropolis will be fully realised at no distant date. In order to show that one of the great difficulties in the way of the application of electric lighting—the division of the light—has been surmounted, and that, in fact, the lighting power can be produced at least half a mile from the machinery which forms its source and supply, it is in contemplation to carry the connecting wires from the Galety Theatre to Pall Mall,

Ir is reported that the Metropolitan Board of Works are seriously meditating the illumination of the Thames are settously incustance; one manufaction of the 1 sames Embankment by the electric light. They could not have chosen a better starting ground.

THE Joint committee of Her Majesty's Commissioners and of the Society of Arts for promoting visits of selected artizan reporters to the Paris Exhibition have now settled the conditions under which artizans will be now setting the continues mosts of the matter of the set of the se eight to fourteen days to his visit, and pay all his expenses out of a bonus of £8, which will be presented to him. Pree admission to the Exhibition will be granted; asm. Presidentiasion to one annucleon win set general; return tickets, London, Chatham and Dover Railway, for fourteen days, can be obtained at the price of 20s.

carbon be no longer supported vertically, but be | not necessarily be attached to the supported

Arrangements for getting food and lodging in Paris have also been provided. Besides the artizans selected by the joint committee, artizans may be sent at the expense of their employers or local committees

A SPECIAL committee of the Society of Telegranic Engineers, Including Mr. Latimor Clark, C.E.: Mr. Hall, and Mr. C. V. Walker, F.R.S., among its members. has been appointed to devise a standard wire rauge.

Among the povelties to be seen at the Paris Publish. tion is a series of specimens of electro-plated human brains, sent by Dr. Ore, the ingenious Professor of Physiology at the Bordeaux School of Medicine, Dr. Ore has applied galvano-plasty for purposes of preservation to the brains of men and animals, and has obtained very remarkable results, the external surface presenting the hard brilliant surface of a metal, while the inner substance assumes the consistency of mastic, and is quite unalterable,-Scientific American,

GRAY's harmonic telegraph can now be seen in operation at the Paris Exhibition. It is connected up with the Morse instrument so that the vibratory telephone messages are sent simultaneously with the Morse messages in a manner indicated by Varley in his 1870

WE hear that a son of Mr. John Pender, M.P., is at Cyprus arranging for the laying of a cable to connect that Island with the Eastern Telegraph Company's Mediterranean system.

Two companies of Royal Engineers from the Southern Division of the Postal Telegraphs, have left in H.M.S. Sinteens for Cyprus, to creet military telegraph lines

THE 8.5. Mints, of the Anglo-American Cable, has been engaged in removing the Duxbury Cable into water freer from mishaps by fishing beats than its old

DURING the last two years the "errors" in messages committed by the Eastern Telegraph Company were only 1,615 words. During three months 561 repetitions were made, which comprised 11,684 words in all, and represented a money value of £3,840.

As mentioned in the "City Notes "of our last issue the steamers Seine and Calabria sent out by the Anglo-American Telegraph Company to repair the 1866 Atlantic Cable, have returned without success. The cable was hooked several times, but the iron The cause was nooned several times, our the iron sheathing was so rusted that it could not hear the stress of raising the cable to the surface,

A QUICK TELEGRAM,-The Agent-General for South

at 2.0 p.m. on Monday, the 22nd ult., from Broad Street, E.C., and received a reply to it at Westminster 181 hours after.

In Parliament, on August 8th, Mr. Anderson asked the Postmaster-General to consider the expediency of adopting a letter or syllable tariff instead of a word tariff, for postal telegrams. The Postmaster-General also announced that an International Telegraphic Congress would be held in London, next June. Mr. Whitwell proposed that the inequality of the rates between telegrams from the Continent to London and telegrams from the Continent to the provinces be removed. Lord John Manners replied that negotiations to that end were now pending between two or three foreign governments.

An official superior school of telegraphy will commence in Paris, on November 4th. A preliminary examination for the admission of pupils will be held in several of the cities of France, and the final examination will take place on October 21st in Paris. Besides the students of telegraphy in the Ecole Polytechnique, it will be open to postmasters and operators reckening two years service, to licentiates in science, old pupils of the Ecole Polytechnique, and of the Ecole Normale Feele des Mines, Ecole des ponts et Chaussées, Ecoles Forestière, Ecole Centrale des Arts et Manufactures, and there will be a certain number of free students, French or foreign, authorised to attend. A preliminary course, of a year's duration, will be instituted to prepare postmasters and operators for their entrance examination. Passes for admission to the examination should be addressed to

the Sous-secretaire d'Etat ides Finances before Sentember 1st. Further information can be procured by application to the Central Telegraph Station, Paris, 103, Rue de Grenelle, St. Germain.

A NEW volume entitled Recueil de Memoires relatifs il la physique des muscles et des neefs, has recently been published in Germany by Du bois Raymond. It contains his researches on various subjects, electrical and other, since 1855. To these are added a memoir for the first time published of his observations on the electric phenomena of the Malapterure a creature never before investigated in a laboratory.

CORALT PLATING. - An interesting and valuable communication on this subject has recently been made to the French Academy of Sciences. It appears that M. Gaiffe, while studying some of the properties of magnetic metals, obtained by means of the voltaic current, was struck with the superior beauty and hardness of cobalt over iron or nickel, and thought that it might be advantageously utilized in electro-plating if it could be treated as easily as such metals as iron or nickel. Some beautiful samples of the plating on strips and Australia rest a telegram to Adsiade, South Australia,

The colour is a bright white, resembling old silver. It

a tan he no question, one, the lest form dly imported from tion of the telephone. rgo'y in use in the doyed in the fire England are not yet te by the Salvage ther service. It is, dies building, and t Office authorities also been in use for establishmenta and ne for a short time nettemporaries. It effecting communi-ore underground, it fers, in which case

That under costern

, while its spinental purposes across. The No. use at their net distance over a connexion with to Dublin, Sir the matter his leve that we shall wro of sub-

r purpose they bloom, which is the terpede. 'usr, but, in I the torpedo of t.stirg, on 2 is that the ther are not

M'Evoy does do vibrating it are laid a ere boxed in o shift their to come a o receiving is continu-codition in L according

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secophone in the same connexion.

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THE TIMES, MONDAY.

AUGUST 19, 1878.

FORNY DEVELOPMENTS IN ACOUSTICAL SCIENCE.

It is not spin-22 muniforment for inverdential being legislated of their recognition entersons of playfold enterson. [Signature of the control of the control of their control of their control of the control of their control of

Taking them in their order of priority, we first have t notice the telephone, of which instrument there are two kinds—the thread tolephone and the electrical telephone. It is necessary to draw this distinction at starting because the former is not unfrequently confounded with the latter.

The broad distinction between the two lies in the fact that the thread telephone effects the absolute construction of sound, while the electric telephone effects its convergion into electricity and its retransformation into sound. With regard to the onduction of sound it is to be observed that Rolect logice, the calchrated subvaluist, more than "60 more sing demonstrated the facility with which some might be con-ducted through a material agency. He, in 1667, stated that he had by the sid of a distended wire conveyed so to considerable distances. With his arrangement he states that a whisper was instantly heard a furbug cif, and that not only by a straight line but by a line beat in many angles. Here, then, we have the genu of the telephone shalowed forth in no indistinct terms. The idea, however, lay deement until about 50 years since, when Sir Charles lay dermant until about 50 years since, abon. Sir Charles Wheatsteen produced in the lecture theater of the Adelaide Gallery the soots from a medical lost, which was placed in the collect below. The seames were converted up a deal red, which rested upon the mercall box and tendanted in the theater, a sounding how being placed on the boy of the rod. The same appointent was unbegreatly terminated in the theater, a sounding too teleng pieced on the log of the two I.T. me man appelentant was subsequently arrived and by Professor Narsdey and by Professor Tyndeld arrived and by Professor States and the second states of the Imported upon by the inter Professor in an astronomy in the International Confessor in the International Confessor in America. In case of these experiments two planes, placed in houses on supposite sake of a whole strett, were com-nected tangelier by means of a long worden red, which was taken the International Confessor in the International Confessor in the International Confessor in the International Confessor in the state of the International Confessor in the International Confessor in the relation of the International Confessor in the International Confessor in the value of the International Confessor in the Internati vibration of the seasuring source or one press was contained incclassically through the wooden rod to the searching board of the other, which was set into vibration, and the board of the otner, waren was few into victation, said too strings of the second plane, which were in unison with those of the first, were through spinguished plane and produced music. In the thread telephone we have a and produced masks. In the thread telephron we have a couple of small boxes, such having a membrane stretched sever it, and the two being costed by a thread. By talking into one of the boxes are selected by a thread, it talking into one of the boxes are the membrane in put late vibration, which streatled is mechanically communicated through the throad the travel is pro-turned by the second of the second in proThese is, heaver, a while difference between the form of allegations and that is which electricity jobys to premient a part. In the case case whenever the contract of the case that the contract is made to the total be just the state of the contract of th

imination, or desired relations of Professes being the profession of the control of the control of the control of the promised relation of a promosed magnetic accretion by a second wife so and of the control of the c

restigated the production of sound by the electric current

neiderable attention at the time, and to which be gave

the name of galvanie music. Attempts have been made at various times to render incitation afficient in sorphorp, the mass is torce attempts appears to lave been made by Professor Philip Rein, of Friedrichsdorf, Germany. He commenced experimenting in this direction about 1852, but these not appear to have succeeded until 1-50. In the following year he lectured upon the subject at Frankforton-Main. His peak telephone was of a most primitive character, resembling in this respect the arrangement by means of which Professor Hughes first illustrated his microphone. Heles first used the bung of a heer barrel, hollowed out to a conical shape, the orifice being covered with the skin of a German urage, which formed the membrane. A little strip platinum, representing the hammer of the car or parament, repersonned the manner of the car, and which hantner made or broke the electric circuit me-Which accounty made or arose the exerte circuit pre-cisely as in the instruments of later date. For a receiv-ing instrument he used a knitting-weedle surrounded with a c.il of wire and placed on a violin, which served as with a cult or wire ama paters on a tream, much were of a neunding-heard. His subsequent arrangements were of a far more philosophical and finished character. To Reisa, however, is clearly due the credit of laving been the first o conceive and execute the bles of causing the toice to vileate a membrane, and through it to make and break an electric circuit. About five years since Mr. Eisha Grey, of Chicago, invented a musical telephone by means of which many nonical sounds can be ously transmitted and reproduced. Mr. Gray's the street of th

Professor Gray, however, was certainly the stool. Professor Gray, however, was certainly the first to sindow forth the electrical telephone. In those of his later researches which were published immediately before the publication of the Bell telephone he un-dombtedly indicated that invention. He deposited in the American Fatent Office the first description of American Patent Office the first description of a speaking telephone. He, however, neglected its development in favour of his pet release of mul-tiple teleptaphy, in connection with which his tele-phone has been practically applied in the United States, Professor A. E. Dolbert, another American physicist, produced a telephone in which he uses electromagnets and with his apparatus it is stated that her tall can be heard more distinctly than when a great effort is made. A very interesting effect was noticed on night by Professor Bolicar in connexion with his telethere use a continuous current through the wires, accour-pended with sounds which increased in intensity as the bright atreatures massed by. Mr. Thomas A. Edil inventor of the phonograph, has also devised a telephone in which, by the judicious introduction of currents of electricity, he is enabled to intensify the sound. Nor, so far as we can learn, is this intersidention produced at the expense of clearness, which, other things being however, which has not yet been practically introduced into this country. There are two other names which should not be emitted from a notice of the telephone, and they are there of Mr. Cromwell F. Varley and Mr. Yates, who he both contributed by their experimental rescurcing to the development of the science of telephony, if all these instruments, the Bell telephone, as we have

development of the assects of tempology.

If all these instruments, the Bell telephone, as we have already observed, was the first to enter the field in a practical form, and is the only one which has been distinctly applied to many useful purposes. This instrument has been seen and will known to the oublish that it is connecessary

here to do more than describe it in general terms, Professor Bell's recearches in electrical telephone were commenced some years since with the production of musical sounds, he being at the time en gaged in Boston, United States, in the work of tesching the deaf and doubt to many. We may now over the various steps which ied to the perfect telephone of the present day, which corelate of two small featenments, identical in our struction, and connected by a couple of conducting wires. Each of these instruments is formed of a small wooden ose, containing a permanent for magnet, around the pol-of which a smell gold of who is wound. In front of one or where a small coal of the p woman, in terms of a read of the magnet and neatify touching it is sixed a thin dies of ferrotije iron. When it is desired to transmit sounds, the speaker—speaking agenet the discorby the pularizons of size set in matter convex the thin metallic the variation of the field of the perm steat magnet. These currents are transmitted along the conducting wires to similar instrument at the other end, causing the plate in front of the magnet there to vitrate in exactly the same wer as that in the transmitting instrument by varying the attraction of that magnet upon the disc infront of it Similar pulsations of air are thus set in motion, and wases of sound reproduced exactly corresponding with those ensurating from the person or ginally utterior In other words, sounds delicated to the transmitting tele phone are by it converted into electricity and or transphone ate by R. conserted into electricity analyses com-formed into sound gain by the receiving indicans. in: And here we may observe that the greatest fact which has been brought out by these investigations is that the mere vibra-tion of a disc is sufficient to represence all the varia-tions of the human voice. Looking at all that has been previously attempted in telephony, and look-ing also at the practical shape in which we now find Professor Fell's telephone, we can have to hesitation in ac curding to that continuous the credit of having first con annuated the articulating telephone. It is now to a well amount to need insisting upon here, that the comployment of what is aptry termed the anadatatory systems of corrects of else ricky has alone rendered it possible to preduce these results. Whether in its present form it prove as university useful as was at first

anticipated by tremains to be seen. That under certain conditions it is eminently serial three can be no question, but at present its spaces of surfaces is nonrealistilistic. Although during the past 12 months assureous attempts have here made to improve the telephone, the less forms still remains that which was criginally imported from America.

With the provided application of the tellings of the August and August and the provided application of the tellings of the state of the

small tell suppose as low unfinitely. We also small tell suppose as low unfinitely. The master was a low of application of the last of the

While on the subject we may notice the ingenious telephone itself is the sounding opposites, no special signifing size or bell being required. A brase wheel, about Jin, in rates and having a milled edge, is mounted on a trame, and is expetile of being to at.d by means of a small handle. A small that spring is three to the stand on which the frame carrying the wheel is stand, its upper end reating against the edge of the wheel. When the wheel is turned n noise rescabling, on a small scale, that of a watchman's rattle is produced. Both the wheel and the string being included in the circuit of a battery and being included in the circuit of a sattery and telephone, a vibratory current is produced when the wheel is turned. There is a button to be present, as in an ardinary electric bell arrangement, n order to place the lattery in connexion with the tolephone line, and us the but'on is present the left hand a term is given to the wied with the richt hand, and attention is thus called. Directly the Lutten i ellered of pressure the battery and which are cut act of the circuit, so that there can be neither wants of bettery power nor injury to the telephones in circuit.

We have already alluled to the re-variety of Mr. Edians

in the release of telephony, which form a valuable can ri-bution to the history of the development of the speaking telephone. He commenced his researches in 1876, and we regret that space will not penuit us to follow him through on his first general experiments down to his latest development—the carbon telephone. This ingenious apparatus
was first discribed by Mr.W. H. Procee at the meeting of the British Association in August, 1877, and although many triels have been made with it in England, it has not yet report tself a successful instrument. It consists of a displaying of ferrotype iron, having below it a small cake of commoverearbon, which is held between two plates of platitum. The carbon and its plates are attached to a short motal rod-which is aspable of an ap-and-down motion within the stem of the instrument, which externally resembles the Hell telephone ; but there-with the exception of a ferry type disc-the resemblance coases. The red is adjust able by means of a sersor which projects from the lower end of the telephone. Betaten the ferretype disc and the upper platinum plate is placed, on its side, a small piece of indiarubber tabe, and through it pressure from the pices of indiarables tale, and through it pressure from the motion of the disc is communicated to the plate and so to the carbon, the pressure upon which is thus reads to vary in necessary with the vibrations of the disc. By this means a corresponding variation in the electrical resistance of the plate of the pressure of the pressure of the pressure of the characteristic pressure of the pressure minion a corresponding tenantics in the electrical relations of the critical is Produced. The earlier is placed in circuit with a lattery and receiver by means of two wires, which are connected one with each of the platinum plates. The are compensationed with each or two partitions power. And special feature here is that the resistance of the carbon is special feature here is that the restatance of the careen is varied according to the degree of pressure put upon it by the vibrations of the disphragus, which varying pecthe viterature is the mapping in the upper platform sures are transmitted to it through the upper platform plate. The carbon being placed in the circuit of a voltale current gives that current an undulatory character. vocate current gives and convent on measuring various, which reproduces in a Bell telephone receiver at a distant station the convenes witerations imported to the instrument at the other end of the wires. With this telephone Mr. Edison states that he obtained perfect articulation, and

that whispers were availably transmitted to a distant station.
It will thus be seen that while the Edhum telephone re-It will thus be seen that while the Edison telephone re-sembles the hell telephone in that the senercus vibrations are communicated through a telementalite disc, it differs whilely from it in the method of converting those sounds that objects only a neither membranist them into sound. Mr. Vibration described to the converting them that some disc. attendance to make it act as a call, concats in placing a tricking to make it act as a call, concats in placing a kirking, sin mide i in si an enil, conclut in placing, in the telephone, when whi is use, in a stand, and braging a small trar with a large met on to be sen in the displaces of the telephone distribution. The telephone distribution is the telephone distribution of the telephone distribution of the telephone distribution. Upon the telephone being set in the telephone distribution of the telephone distribution distrib and are call or as alarum in place of a bell or other ap-pliance. Mr. Edison has also worked out seen other water pliance. Mr. Edison has also worked out seen other varia-tions in telephonic appliances which are lighly ingenious and original.

Sourcely ton the one erse andibly with each other, although many miles sport been verified by public demonstrations of the powers of Professor Bell's telephone, when we were startful by the announcement that by means of a purely mechanical device human speech could be recorded, preserved and recognized at will, even long after the death of the speaker. The re-markable apparatus by means of which this is effected in the plenagraph of Mr. Edison. This machine was first de-scribed in England by no at the commencement of the uresent year, and was shortly afterwards exhibited for the first time in England at the Royal Institution by Mr. W. H. Preced. Talking machines use had brand of before, but estably not such an one as this. Some years since Proforsor Faher,of Vienna, perfect d'a mort ingenious maelline in which he reproduced the movements of our yould organe, thereby producing speech. He mode a careful study of the source of articulate sounds and constructed an artificial organ of specific. The rocal chards were formed by mones of a valenting ivery reed of variable pitch. An oral cavity was abled, the size and shape of which could be varied by mean of nact of keys sinalar to those of a plane. The consumants were fermed by the aid of a rubber tangue and lips, while a little was !mid placed in the threat swisted in the sounding of the letter E. In this remarkable machine Professor Faller reproduced the mechanical sauses of the vibratues making voice and speech. Mr. Edicon, on the other hand, obtains the mechanical effects of these vibra

The first placegraph made by Mr. Edison consisted of three main parts. The first-the receiver-was a much-piece, the further end of which was clearld in by a diaphragm of very thin iron, in the centre of which, on dispension of very time area, in the centre of which, on the outside, was fixed a fine steel point. On spraking into this mouthpiers the disc was put into vibration, and the point would, of course vibrate in and out with it. The second port of the phonograph - the recorder - was a metal cylinder, having a continuous spiral growe cut in it from guider, mixing a tourismous reprint grader, which was placed one can to the ounce. This cylinder, which was placed horizontally in front of the mouthpiece, was rolated by means of a handle, and as there was a screw thread cut on its spinile, as it was related, it was, at the same time, traseed herisantsily in front of the mouthpiece. The third pertian of the apportus—the transmitter—was somewhat similar to the first, except that instead of a rostal tive it had one made of prechment. In operation site it had one made of parchinent. In operation a sheet of totall was strapped round the cylinder, which was rotated ablie the mouthpiece was spacen late. The vitrations of the steel point were impressed in the tiafed in a continuous line and the continuous line and th over the spiral groore on the cylinder. The words ing been spoken or the song sung, the cylinder was rotated lack to the starting point; the receiving mouthreturn tack to the starting pains, the receiving mouta-piece set lack, and the transmitting tube advanced to the cylinder, so that its steel point fixed into the first Indentation made by the steel point of the receiver. On again then many up the steer point on one receiver. On again turning the hundle at the same rate as at first, the, words or contributed on the timbel were reproduced.

If was not long before some very marked improvem is was not long is fore some very marked improvements were introduced in the details of this machone, which, being the first one made by Mr. Libour, required some mechanical polish. One of its chief defects was that unless methodical polish. One of its which defects was that uniform the epinder was related very standily and at an uniform rate of pred both in recording and transmitting, the re-sults were very long-first. Steady relation was at first added by a lay wheel, but in the able hands of its inaided by a fly wheel, but in the able hands of its in-ventor clockwork was specifity substituted for manual rotation, and very prefect results were obtained. The transmiter, too, has been absoluted in subsecution in the bands of the contraction to reconstruction. The transmission, too, see term assumed an susceptions in-struments, and by simply unsetting the receiver, turning the cylinder lack to the starting point, re-setting the reteiver, and starting the machine, the words or sounds are new correctly reproduced through the receiver. In this now correctly repreduced through the freetiver. In this country a most perfect plannership has been produced by Mr. Augustus Stody, whose name is well known in commains with telegraphic instruments. The cylinder is driven by a controlled clockwork mechanism, actuated by divided by a columnical toranors, measurem, accounted by a describing weight, which is an arranged that it can be would up while the cylinder is not ting without interyound up while the cylinder is not ting without inter-fering with the regularity of its eyecd. Take instrument we recently had the opportunit inspecting at the rooms of the London Sterenagds Company in Cheopolds, who are the sole aparts in England for this remarkable invention.

The phonograph, ingenious as it is counct at present he regarded as anything more than a philosophical toy, as it has of as yet taken any distinct position in practical science, not as yet taken any disance position in practical actions.
It is true that by its aid we have been promised verbal
communication with friends at a distance by seculing them
a sheet of timfoil—or phonogram, as we may with propelety a sheet of thisms we promogram, as we may wrist progressly term its—impressed with a message from our firm which they will red off on their instruments. Storp and mostic, speeches and termons—in fact, every variety of normal, natural and artificial, it was predicted we should have nautral and artimeter, it was predicted we should have recorded, storded up, and repedieved at will, years and even centuries hence. And, indeed, there is no reason shy this should not be. Bet mone of these things are of any practical value, and, so for as we are aware, so one of the metal purposes of every-sky life has as yet been subserved by this remarkalde machine. At present it remains a boartiful philosophical toy, to be seen, he could to, and nondered ata marvel of laman ingensity. But so quickly do scientific a mirved of amount ingeninty. But to questly do whentile developments take place in the percent day that it is by no means improbable that, even while we are writing, its iffeel inventor may be advancing in at least a step further towards praceled utility. However this may be, the present value of the phenegraph is, perhaps, lest expressed in the words of Mr. Dilison, who, in reply to an interrogator, once said :-

"This tourneless, touthless instrument, without been

"This tonguoles, touthless Instrument, mithout larges of doarpart, dumin, viocless matter, nevertheless stimics your touce, aprake with your voice, utters your words, and crutures effect you have exmined into dust will rejeat epain and again to a generation that could never know you every lide tenopit, every fault thought, every fault thought, every fault thought, every fault hought, every fault hough the your those to whap'er against this this from displangan."
And here we think we should not be doing justice to one of our countrymen-Mr. W. H. Bariow, C.E., F.R.S.-ii beg upon the present portion of our subject. This inven-tion is the legacraph, which Mr. Barlow desirned about four years since, his object being to device a method of shorthand writing, which, however, los not been carried out in tractice, although we recently saw this ingresion appar ratus at work experimental y. Eriedy stated it is an in s: roment for giving a graphic representation of the vibrators autions of the air-waves of speech. The apparatus come of a moutiatiere titted on a short tuke, which is closed in at its further and by a membrane of this indistribly. A membrane, and is kept mostened with ink. It will thus be seen that this brush partakes of all the vibrations of the nembrane, and it is so arranged that at draws curses corre symbolic to the vibrations of the diaphragm man a strip of paper which is drawn uniformly past it by a Merse feeder. The logograph writing, of course, has to be translated. On the strip of toper it passables the relegrable mesage from hir William Thomson's well known applor recorder. In the course of his experiments with this machine Mr. Parlow found that a cubic inch and a half of breath are ordinarily exhaled in uttering each rowel sound. In an ordinary expiration 49 onbie inches of breath

We more some to that latest and he on mealeast a markable reientine nevelty, the microphone of Profenor D. E. Huches, the eminent inventor of the wellknown telegraphic type-printer hearing his name. Towards the close of April last it was supported that Professor Hughes had made the wonderful discovery that certain bodies are sensitive to sound, as selenium is to light. By placing such a body in the circuit of a small lattery, it is so affected by the sonorque vitrations when spoken to, that it replaces with marked advantage the transmitter of the Boll telephone. The sound of a slight touch with the soft turt of a feather is transmitted with startling inctness. In fact, the microphone acts towards the co in the same expanity as the microscopenets towards the ey-it not only magnifies sounds which are audible, but exables sounds to be heard which are otherwise insudition The sonorous vibrations produce strains in the conductor which cause variations in the resistance of the circuit, and

thereby produce similar variations in a correct flowin thereby produce similar valetices in a carrest flowing intrough that conductor. Professor, Pulgaba invested the introphone in December, 1987. On first showed it pri-vately in operation in Personal, 1987. In other car-testy in operation in Personal, 1987. In other cases, 1987. The conductor of the professor in the 1987 of the con-trol once presently known until the 2017. In this, when the first dominant axion of this most remarkable differ-tion of the professor in the professor in the pro-tain of the professor in the professor in the pro-tain of the professor in the professor in the pro-tain of the professor in the professor in the pro-tain of the professor in the professor in the pro-tain of the professor in the professor in the pro-tain of the professor in the professor in the pro-tain of the professor in the professor in the pro-tain of the professor in the professor in the professor in the pro-tain of the professor in the professor in the professor in the pro-tain of the professor in the professor in the professor in the pro-tain of the professor in the professor in the professor in the professor in the pro-tain of the professor in the professor in the professor in the professor in the professor in the pro-tain of the professor in the profes tag are; gammatrama es tats most remetable discu-very was made at Friescu. Hughes cause. Upon that occasion, britise Professes Hughes, there were pre-sent Professor Hustley. Mr. Corke, and Mr. W. H. Presce, Mr. Contad W. Corke, and Mr. Perry F. Nursey. The appraisal professor flughes was one of the most symmittee depriva-tion of the professor of the most symmittee department. and, with the exception of a Bell telephone receiver, could not be appraised at more than a few pence. This apparatus had a child's halfgerny worken tremy-less for a resometor, on which was used by me.es of scoling-wax a short glass tube, filled with a mixture of tin and tine, the ends being stopped by two pieces of charcoal, to which were attached wires having a battery of three small Daniell cells - consisting of three small Jon puts -in circuit. The wires were led away to a field telephone phoed in on officining aparters at. The money-box, which had one coul and the same and the menty-way which are well the threefed our translation, while a Bell telephone was used for a receiver. Some's conceive audible, and some, in fact, insulible to the unasisted our, were by means of this apparatus delivered with starting loudness through the Eedl telephone. Nesserous experitoute of the utimest interest to physicists were carried out by Frofe-ter Hughes with this apparatus and with modifios of it, all tending to prove that he had succeeded in preducing the simplest and most powerful electric articularing telephone over known. The first public exposition of this remarkable discovery

the man place caponion of this retractance automorp, was given before the floyal Seckery on the tile of May by Professor Hughes, who showed how that even the footfalls of a common formedy re it walked over a bonal could be barrel with numbrale-state of the footfalls of the common formed over the walked over a bonal could be barrel with numbrale-state of the footfalls. walked over a boral could be barral with sumstitutionable distinctions by a person whose or was at a sistent telephone, which slight to placed vera miles away. On May 20 Mr. Proceed, bettered upon the advocation before the Society of Telephone before the Society of Telephone Engineers. No secure was publicity given to this intervelous intention than the tritentific world-operatily that of surgical science, set about the endeavour to reader the microphone practi-cally useful. Dr. Lithardson was one of the first to endersear to ascertain whether the apparatus could be applied to diagnostic purposes in cascultation of the lungs and heart. For that purpose, lowever he reported that he siid not find it superior to the stethescope. The truth is that there is considerable diffi culty in making the sounds which are heard through the stellorcupe pass in the form of electrical vibrathms to the ear Until this is achieved it would seem that the applies tion of the microphone for the purpose of diagnosis is not available. There are, in fact, disturbing alongsts which interfere with the direct conduction of any one special was still parented in surgery with the microphene, and on the lat of June Sir Henry Thompson demonstrated its value for discovering the existency of stone in the likeliler no matter how small the particle neight be. He success fully operated on a patient in the presence of several other medical men. Sir Henry shortly afterwards gave a demonstration on this subject at the University Colbor. He showed that with the microphone carefull adjusted, and with a lattery of not too great strength, i near cusy by trial to detect the presence of even a minute fragarat of unremoved calculus in the bladder. By an ap-nification of the same principle it was shown that the pricetions of the famile principal is was aspending that the recipilities of a builds or other forcigin body, or of a diseased bone at the bottom of a deep wound, night pro-bably he effected. Sir Henry, hourever, observed that while it was quite possible for a skilfful surgiven to make binself aboutely certain by means of the microphane of what he was previously only morally convinced of, he did not strongly anticipate may very remarkable results, at least in unlinary practice, from the use of this ingenious instrument. The matter is still under investigation

In the experiments indicated above a Bell telephone we used as a receiving instrument. Since they took place, busever, Professor Hughes has devised a receiver which is of a peculiarly sensitive claracter. It consists simply of an open metallic cylinder, over one end of which is stretched a membrane. Be far it will be seen that this is stretched a memorance, no for it will be seen that this is nothing more nor less than the receiver—or transmittor— of the thread telephone. Upon this drum Professor Hughes mounts his curbon epperatus, which is attached to the centre of the membrane. The drum acts as a resenator. and the arrangement forms on excellent microphonic re-ceiver, and effectually replaces the Bell televisions for that IGITPOSC.

urpose. Refore quitting the subject of the microphene, it may Before quicking the seasons at the miscopenic, is may be desirable that we point out what to general readers may not be apparent, and that is the dislaminarity between Professor Hughes's discovery and the enrhou telephone of Mr. feaser ringmes's discovery and the cream tecephone or Mr. Edison. And we are desirous of doing this to provent any misapprehension upon the subject to which otherwise we misapprenencen upon the suspect so waren cenerates we might importantly give rise. The principle in the two instruments is similar, in that it consists in the employinstructions in animals, or one is consume in the employ-ment of a battery current in the circuit of which is inter-posed a material the-resistance of which is variable. It will, however, he seen at once that here the analogy ends, soft, hereon, be much come the local is traighted. In soft, hereon, be much come the local complexity is a simple of the local level of the local monochillada under this definition, and their surfaces are monochillada under this definition, and the registry of the registr

Three are-the impossibility of a message being transmitted over ordinary tolegraph wires with the cer-tainty of its being clearly heard and understood at the re-ceiving onl, and the impossibility, oven under favourable circumstances and with special wires, of the message being heard at the receiving end if there is the slightest notes or near at the receiving on it there is the slightest noise or disturbing influence near the receiver, unless he stops the ear which is not engaged with the telephone. This latter difficulty is leing met by a special form of telephone, which is in shape like a large watch, and which closes the care is in shape title a targe water, and water course the car well in, while attached to it by a curved wire which passes over the head is a mullio for the other car. This leaves ever the head in a melle for the other ear. This leaves one hand at liberty for writing down the message if needs be. On the Castinant, it is stated that in some parts as the continued of the continued to the continued to the continued to the continued to the continued to the strengthening continued to the continued to the strengthening continued to the continu special wire. It may be that in time both these difficulties will be overcome, and no one can say how a con I best until they are the belephone must necessarily have but a partial and somewhat restricted practical application. In the cause of progress, however, we wish all three farentions that measure of success which their mest auguier advo-cates predict for them, and which their substal investor an richly deceme

The World

WEW YORK, THESDAY, AUGUST 27, 1878. TOM EDISON BACK AGAIN

THE MARVELLOUS MAN RETURNS TO HIS WORKSHOP FULL OF PRAIRIE BREEZES

HOW HE TRIED THE TASIMETER IN A HURRICANE-BESET HEN-HOUSE AND KILLED A DEAD JACK RABBIT.

The wonderful Edison has returned to bis workshop in Menlo Park, after an absence of over a month. He went to the West for scientific experiment, and to learn if the corons of the sun in celipse gave forth heat. He has come back to talk; about animals that stand still to be shot at, trout that leap out of the water to bite at an empty book, brouche ponies that "buck" and mules that kick. How long he stable in his house when he reached Menle Park yesterday no one knows, but early in the afternoon a Wonza reporter found him sitting in the office of his workshop, head over ears in business. It took a long time for the reporter to wake him up, and then Mr. Elisan lauched

and handing him a letter said, " Read that." "The letter was dated from Cincinnati and began, "Much respected sir." It was from the inventor of a fluid resistance neutralizer and of a gravi-motor. After the inventor had do

a gravimotor. After the favoriter had do entried his against in wrote? A secreted his against in wrote? A secreted his against in wrote? A secreted his against a secrete his ag

"There could be an awful good story mad out of the letters I get," said Mr. Edsson. meditatively; and while he meditated the reporter looked at him to see what change his Western trin has made in him. His face was tanned, he had got a new straw hat, ine shiri was tolerably white, he had an old, long alpace cost with bulgy pockets, his hands had sost the grime of the workshop and had taken on the bronze of the Western sun, he had a pair of

new pantsloons, and he hadn't combed his hair
"'y more c'an he had before he left home.
" Mr. Edison, how did you like your trip!" asked the reporter at last.

"It was bang-up," he answered quickly, laysing into the unscientific slang common t all sections of the country. "It was bully. I never saw such a country in all my life. That's the place to go to. What with following trails, and tumbling down precipees, and riding over alkali deserts and keeping cool at 125 degrees in the shade, a person couldn't help enjoying More of t

"But what about your azientific experiments to "After we got through with our scientific experiments we went hunting. I killed ever so many gleer, and jack rabbits, and sage hens, and

How many doer did you kill po "How many deer side you kill?"
"I killed one and shot at another. There are lots of antelopes there, but you can't got a shot at them under the hondred yards."
"How did you travel when hunting t"
"How did you travel when hunting t"
"How did you travel when hunting t"
"How did you travel when hunting the "did along and the young to be a side along at my back. Those to trenche peales are wonderful animals. I was joggleg along one day

when the head pony of the train started on a run, and all the others started after him. Mine kicked and resred and got himself all in a heap omehow while I held the reins. So I let the reins go and hung on to every part of him I could get a hold on, and away he went like a shot. I didn't have time to enjoy any of the scenery we travelled through for some time. Just then Mr. Edison's eye caught a refentific personic al that had been placed on his desk.

result was manufactured potential to the dark provents of the result of the control of the contr

replaying the other direction until it went off the stacker that I consider measure it." Then Mr. Bitton frozed, all about the hunding and fitting, and entered into a detailed exposi-tion of the state of the state of the state A his continued to the state of the state A his continued to the state of the state A his continued to the state of the state of the state of the train. As he went into the outer offen he found young Tean still struggling manifully with the problem of the subjected pier. The reporter passed out of the life the water annulary with the problem of the surjugated pipe. The reporter passed out of the door and its a moment heard light frost patter-ling after him. He terroed and naw Dot replaced in another suit. She chapped his bond, publish him along for a roung on the press and not no her results mouth for a kin-of-ment of the results of the problem o

THE DAILY GRAPHIC THURSDAY, AUGUST CO. 1878.

Mr. Edison's very latest invention is so simple and of such immesses utility that it is strange in has not been thought of before. It coust its in making an lock which leaves a raised mark on paper, while which les wicce haves a rehed teark on upper, with which the kind can seelly communicate with cach other. It is 'in the form of a powder, which becomes fit or use of microtillo sie water. When this flows a reason it tears elerated electro on upper, which can be upper the control of the cache of the cache which the cache which there day the accusive flavor that sander letters have not surrected the event of the cache of the

THE DAILY GRAPHIC FRIDAY, AUGUST 30, 1878.

... Edison's name is in all the French nemspa-

THE MACHINE THAT SPEAKS

EDISON AND HIS EXPERTS PERFECTING THE PHONOGRAPH.

THE RESULT OF RECENT EXPERIMENTS -

PROBLEMS YET UNSOLVED. "Mr. Edison," said Tun Guaruto reporter to

"Mr. Million," said. The Garrier copporer is the disconsist practical," new thous the photographs of the disconsist practical," new thous the photographs. "So, we devt, and it is now of the first the state of the contract of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the period try fast. Cense up to thousand the state period try fast. Cense up to the state of the period try fast. Cense up to the state of the period try fast. Cense up to the state of the period try fast. Cense up to the state of the period Censes or the state of the plants of the state of the state of the state of the period Censes or the state of

that specome possessing yonder, would scarcely recognize either its shape or its voice "-and he stepped to the beach and any into the mouthplees. Throwing it out of geer and showing the cylinder back with one movement he turned the wheel again and the song was reproduced with a tharpness and accu-racy of indiction that we had nover seen before. "That is our model machine," said Edison, "and Johnson is practicing on it every day, determined to

make it perfect."
"Anybody," said Professor Johnson, " who has used "Anyoory," and transcero among who an assect the phenograph very much knows that there are times once in a while when for a moment the machine will reproduce the voice with an accuracy of articulation and fulness of vokume which it does not ordinarily attain. Then it will suddenly lose the ordinarily attain. Then it will suddenly lose the power, and the oursains searches for san for the secret. I am looking for the conditions required to perpetuate that excellence which is now only occa-sional. I find that three conditions are required, "
"Are these conditions which you speak of purely mechanical and such as can be ascertained by experi-

piece, so as to regulate the tympsoum and central the amplitude of the vitrations of the piete. Another the amplitude of the whrations of the piete. Another need is to asserting the precise angle at which the needle should turn. The third is to learn the very best mitted at 0 which to make the folia, or receiving tablet. The first of there I have already provided for by putting to the munitarce with a thread. The cread I am experimenting as by making the needle adjustable. Concerning the bitting, we are will unshoulded. Bertinot, you see we have made a record longitude of the vigine, for the purpose a record longitude of the vigine, for the purpose a record longitude of the vigine, for the purpose of fastening the foll on eastly, and a new and simul adjustment of the needle by screws. Then this ar-rangement by which we throw the crimder to the left, instead of having to turn it back all the way. And some other things that we can't tell the mit

yet."
"And you see," said Edison, "that this machine "And you see," said zallson, "that this muchine talks for better than any other phonograph we have ever had. Johnson is going to exhibit it is the Kurta Gallery, beginning on Friday, and it will be likely to surprise these who hear it

surprise there who here it."
"One face," piecrocod fir, Johnson, "we have esreliabled in our experiments in that the articulation
tablished in our experiments in that the proportion as
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verkmastering in the proportion as a securately made and put together. This is to a great
access a protection segulate counterfelling and infrancement of patent."
Then," and I am Guarranc, "the instruments now
"Burn," and I am Guarranc, "the instruments now

ction throughout the country are very im

"Buch," and the othersee, "who inflationates never in property of the property

SEPTEMBER 7, 1878.7 Scientific American.

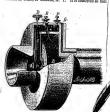
The Tasimeter and Magnetization. After perusing an account, in a recent number of the SCIENTIFIC AMERICAN, of Edison's tasimeter, it occurred to one of us to apply it to detect, and, if possible to mensure, the elongation and shortening which, as discovered by Joule, are produced in a har of iron by magnetization and demagnetization. Accordingly, to test whether the effeet could be observed in this way, a rough specimen of the in-trument was constructed, and with it some preliminary experiments made, an account of which may interest the readers of Nature. A small cylinder, about half a centimeter in length and diameter, of the carbon used for Bunen's cells, rested with its ends, which were slightly rounded, in contact with two brass plates, one of which was fixed to a rigid upright attached to one end of the base of the inrument, while the other, resting with one end on the base, formed a spring, which in its normal position just touched the end of the carbon. A coll containing four layers of msulated wire, six turns to the layer, was wound round a tube, ten centimeters long and eight millimeters in diameter, and fixed with its axis in line with that of the carbon cylinder. A piece of iron wire was then placed in the axis of the tube, with one end resting against the spring, and the other in contact with the end of a screw working in a nut fixed to a rigid upright at the end of the base remote from the carbon. By means of this screw the pressure of the iron bar on the spring, and consequently of the spring on the carbon, could

be varied at pleasure.

A terminal of copper wire was attached to each of the brass plates bearing on the carbon, and joined up so that the carbon, plates, and terminals formed one of the resistances of a Wheatstone's bridge, in connection with which a battery of one Daniell's cell and a very delicate Thomson's reflecting galvanometer were used. When the iron wire forming the core of the electro-magnet had been so adjusted that there was only a very slight pressure on the carbon, the resistances of the bridge were arranged to make the deflection of the galvanometer produced by the current from the but-tery nearly zero. The galvanometer and buttery keys were then put down, and the current allowed to flow thr bridge during the remainder of the experiment. The electro-magnet was then excited by the current from three of Thomson's tray Daniells. This produced a deflection of the image on the galvanometer scale of about fifty divisions in the direction indicating a diminution of the carbon resistance, which must have been caused by change of contact produced by increased pressure on the spring. The length of the iron core of the electro-magnet had therefore been increased by magnetization. When the magnetizing force I was removed the image immediately returned to its former position. As a verification that the diminution of resistance indicated by the bridge arrangement was caused by clongation of the iron core, the adjusting screw was turned forward through a very small distance, when the deflection was found to be in the same direction as before. When the screw was brought back the image on the scale returned towards its zero. Experiments with various strengths of current gave perfectly accordant results.

We hope by replacing the comparatively rough adjusting serow by a micrometer serow to be able to make some near urements of the exact amounts of clongation or shortening produced in a piece of soft iron or steel by given changes of magnetic intensity. It may be remarked that this method of measurement could be advantageously applied in cases where the amount of change of dimensions to be discovered or measured is very small, but the force which it could be arranged to produce abundant,-Andrew Gray and Thomas Gray in Nature. University of Glasgow, July 12.

NEW TELEPHONE CALL SIGNAL. The accompanying engraving represents a nest little device for giving telephone slarm signals, invented by Mr. Samuel E. Rusk, of Catskill, N. Y. It is contrived so that



TELEPHONE CALL SIGNAL

the electric current may be rapidly broken and established by the vibration of a diaphragm, when a sound will be produced in the receiving telephone that will be audible throughout a room of ordinary size. In the body of the telephone there is a bur mornet, upon

the end of which, within the disphrarm, A. a helix, B. is placed. The instrument thus far is identical with the wellknown Bell telephone.

In one side of the larger part of the telephone body there is a plate, from which the cars project toward the center of the instrument. Between the curs is pivoted a lover. C. whose shorter arm extends backward under the adjusting erew, F. The longer arm of the 1. ver extends toward the front of the instrument, is bent at a right angle, and extends of the instrument, where it is provided with a platinum ointed screw which passes through the leverat right angles to the displangm. . The displangm is provided with a small platinum disk, which contacts with the screw in the lover

when the call signal is in use. The lever, C, has an insulated knob, D. In the plate there is a vulcunite insulator, through which passes a platinum-pointed screw, E, which, when the niarm is not used, contacts with the lover, C. A milled lock aut is placed upon the screw, E, and bluds one terminal of the helix, B, so that it is brought into electrical connection with the screw, E.

NATURE

A spiral spring throws the lever, C, away from the disphragm and into contact with the screw, E. The displanger, A, is in electrical communication with the screw, E, and the NATURE plate to which the lever, C, is pivoted is connected by a wire. G, with a binding screw at the smaller end of the telephone

When the parts are in their normal position the telephone is used for talking in the usual way; but when it is desired to give a signal the lever, C, is depressed by pressure upon the thumb piece, D, when the shorter arm of the lever is brought into contact with serow, E, and the serew at the center of the dhiphragm is brought lightly into contact with the disphragm, A. The current, which before passed through the wire, G, lever, C, and belix, B, now passes through the wire, G, serew, F, lever, C, disphragm, A, and the helix, and is broken and established at every vibration of the disphragm. The current, when thus interrupted, produces in the receiving telephone a loud reed tone, which may be readlly heard in every part of a room of ordinary size. After giving the signal the finger may be removed from the thumbpiece, D, and the telephone may be used in talking in the usual way.

Neutroche umon m Berlin m-150. 29. June 1878

Die Dauer ber Germittellen, ihr in einer Rienet in dem Reunt in dem Re Bermifdites.

the Studier Chiefe in an any accessory. As a respect crossions, the Studier Chiefe in a second secon

Tuly 4, 1878

The Phonograph I HAVE received the following interesting letter from Dr. W. H. PREICE lilake, Boston, U.S.A.:-

"You may possibly be interested in some recent experiments which I have made with the phonograph, and suless put have been pursuing the same course, may find them worthy of repetition. ... same course, may find them wently of
"I found that the groove in the cylinder, covered with tisoid, became a resonator for the high scratching noise of the emboding point, materially interfering with the reproduction of the
pastily of the voice.

be-nigr point, austerithy interfering with the reproduction of the second point, and the second point of the second point of the second point of the second point of the remaining effect was show away with and the sentition of the second point of



resulting. The fact can of our converse, which on which consider the prediction of the control of the fact of the control principles, and the voice reproduced from the principles at the fact, and principles at the fact, and principles at the fact, and principles at the fact of the fact, and principles at the fact, and the fact of the fact, and the fa

ind is one part of its course being nearly see some relations. The but consider what a mandaron, what is, when the source is the course being nearly as deep, as the "mediathry groove" of a chick or a tidpole. It sain by text is and silt be bedy, of which is it see that the source is the chief part; but the course of the first particular of the entry except of the entry except of the entry except of the entry except of the representation becoming connected with those of lowers which is the chief part; the course of the entry except of the entry except of the entry except of the higher seneral eaveys originate as involutions of the surface-layer "figure \$400." And as the except of the higher seneral eaveys originate as involutions of the three parts of the higher seneral eaveys originate as involutions of the surface-layer "figure \$400." And as the except of the higher seneral eaveys originate as involutions of the surface-layer "figure \$400." And the except of the higher seneral eaveys originate as involutions of the surface-layer "figure \$400." And the except of the higher seneral eaveys originate as involutions of the surface-layer "figure \$400." And the except of the higher seneral eaveys originate as involutions of the except of the higher seneral eaveys originate as involutions of the except of the higher seneral eaveys originate as involutions.

f the surface-layer" (page 896).

I have thus passed insensibly from the meaning to the aims of morphology. I trust you will agree with me that it is "a topmost fruitful bough" of the great tree of modern science; it is certainly fuller of buds than of flowers, for now is its early spring only. Kindly attend whilst I open a bud or two to show you what the flowers promise to be.

The ends and aims of marthelers are different from The ends and aims of morphology are different from those of physiology; histology may be said to be equally related to each and ancillary to both. The study of one branch seems to ask in its workers for an innate fitness for the one rather than for the other. One man sharply questions the veky of nature; the other patiently searches after the how. Morshology asks for one who can work after the how. Morphology asks for one who can werk and wait in silence year after year; and his qualities have need to be those of quick insight, combined with the most phlegmatic laboriousness. Here, in this case, natural qualifications are of more importance than those which can be acquired. But the physiologist starply asking why needs to be trained for his work; he must be a mathematic and the property of matician and a chemist as well as an anatomist; read matician and a chemist as well as an anatomist; ready action and cunning inventiveness are most needed in him; a seeing eye, a copying hand, and a somewhat imaginative nature; these are the qualifications asked for in the morphologist. Delight in living forms and their for in the morphologist. Delight in living forms and their transformations shows itself very early in us all; mor-phology is arthetic before it is artentifye; it becomes arie-tife as soon as it is comparative. The morphologist is nothing if not comparative; the development of accurate observation, combined with reddy and constant compari-son and unconscious classification—these are the neces-ary elements in the morphological worker.

sary elements in the morphological worker.

The group of animals to which we belong—the sprelunta—considered as to their skeledal morphology, tomserve the state of the state of the state of the state
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ing, if we could possibly forget their contents and ther ougging and overlying parts.

Considering the great complete of artenture in the highest types, the mind easts about to sei if there he on inhibit the protection of the seize of the property of the Peeling, our may journ among the branches of the great verticabate life rece, we come to forms somewhat simpler, indeed, but formed on the whole on the same pattern, and having on the whole the same mode of embryogene-and ne read break occurs, ever a simong, and a read break occurs, ever a simong, in the contract of the same particular of the contraction of the Searching downwardt, however, from any culminating type of matumal, we shall come to no formal freety marke-hing them until as we are among august creation; the birds, lying over the reptiles, belong to another "factor" in the life-tree.

also, is both husbandry and a building. And as the forces that bind the units of society together are the same as those that perfect the individual as such; zo, also, is it in that which enclothes man and brings him into conscious relation to his fellows. The forces that work in the elementary parts are the same as those that work in the whole to make it one whole. The body is compacted together by that which every cell, every tissue,

compacted together by that which everycut, every liston, and every open supplies; "scooling to the effection of every liston, and levery open supplies; "scooling to the effection of the effection of the effection of the effection of the effection of the effective of the effecti

I history." It will take some time to bright the mind facts in face with a reflect to the third on well as the unflashing face with a reflect with the reflect man upon the earth, and the more faces with a reflect man upon the earth, and the more faces with a reflect man upon the earth, and the more faces with a reflect man upon the earth, and the more faces with a reflect man upon the earth of the reflect man upon the earth of the reflect man upon the earth of the reflect man upon the earth of the reflect man upon the large man upon the large man upon the reflect man upon the large man upon the reflect man upon the large man upon the reflect man upon the large man upon the reflect man upon the large man upon the reflect man upon the large man upon the reflect man upon the large man upon the reflect man upon the large man upon the reflect man upon the large man upon the reflect man upon the large man upon the large man upon the large man upon the large man upon the large man upon the large man upon the large man upon the large man upon the large man upon the large man upon the large ma

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WHO INVENTED THE MICROPHONE? WHO INVENTED THE MIGORPHOUS PRIVATE AND PR

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OF SOLENOE. JUST 5, 1878.

Matemat Amenayer to Societies, in which we find the following relimine of Prof. Harker's and the following relimine of Prof. Harker's relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine of the following relimine to the following relimine the following relimine to the further than Edison it seems strange that

further than Edison it seems strange that he should have taken the trouble to mention what the latter had accomplished. How-ever, both sides have now been heard, and we leare the facts to speak for themselves.

THE PHONOSCOPE.

we have the fact at a speak for a measurement of the IRF FROMOSOPY.

WHEN his has brought to a state of consistent of the state and consistent of the state and consistent of the state and the state of

completed more trequently, a star will appear, the number of "mays" in which is determined by the number of times that contact is unded during a revolution. When the disphragm of the transmitter is specken or ange to, it where more or less rapidly, and the vacoum tube being rolated at a uniform specif, the appearance presented by the slar varies necenting to the sound uttered at the transmitter. The the sound uttered at the transmitter. Two motes in harmony produce two superimposal stars—one bright, the other harr, while a dis-cord gives a meablane patch, with occasional cord gives a meablane patch, with occasional beautiful arrangement, but is necessarily ex-pensive, as that Mr. Taylor's phoneiclosec-(see p. 71) will become the popular instrument or studying the effects of sourcess without for studying the effects of sourcess without

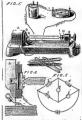
EDISON'S MICROTASIMETER.

EDISON'S MUCRULASIMETER.

[Till following description of Mr. Editon's mirrotasimeter is published in the Scientific
American for Jane 22. It will be seen to combat in
a modification of the carbon telephone, which we illastrated on p. 331:—

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Note by Professor Edison

Note by Professor Edition.

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mirnhors of the National Academy of Sciences, in Washington, April 17, 18, and 19, 1878, and Washington, April 17, 18, and 19, 1878, and Washington, April 17, 18, and 19, 1878, and these parts of the April 17, 18, and 19, 1878, and the Machington, April 17, 1879,

A SIMPLE ELECTROSCOPE.

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The Microphone.—Mr. Williamson has for-tended on a fast microphone, which is the theory of the microphone of the microphone that the microphone of the microphone static of carlon, two liming rows a back, and a static of carlon, two liming rows a back, and a static of carlon, two liming rows a back, and a the price is part to instrument to the seamh-of making a microphone of the state of the tender of making a microphone of the microphone of the location of the microphone of the state of the provent important the microphone of the state of the carlow capped parts of the microphone of the provent important of the microphone of the state of the microphone of the micropho

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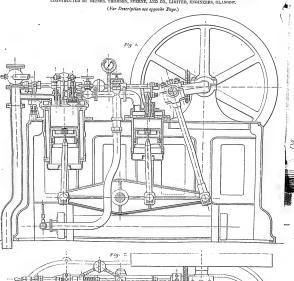
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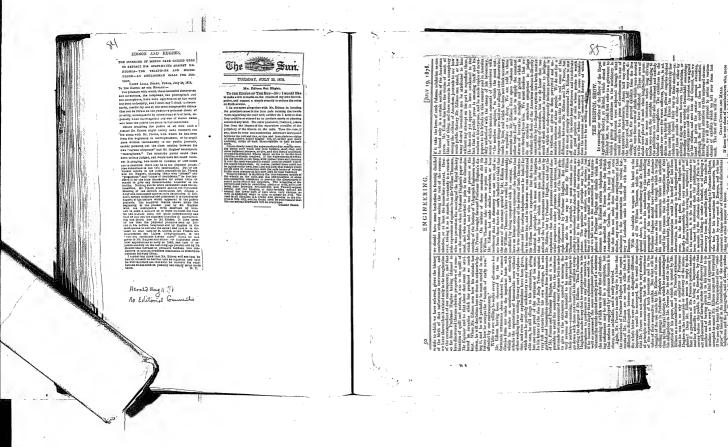
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[JULY 19, 1878.

ENGINEERING. HYDRO-CARBON ENGINE AT THE BRISTOL SHOW AND PARIS EXHIBITION. CONSTRUCTED BY MESSRS, THOMSON, STERNE, AND CO., LIMITED, ENGINEERS, GLASGOW.



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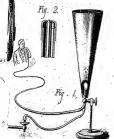


Scientific American.

[AUGUST 31, 1878,

THE SPEAKING FLAME. BY 620, N. HOPKING, . During some of my recent experiments in acoustics, hav-

ing occasion to investigate the characteristics of sonorous waves, I constructed a manometric flame apparatus after the plan of König, which, although it worked admirably and gave in the revolving mirror those well known and strik ing effects, did not possess the requisite qualities, although a very delicate diaphragm was employed; I therefore devised a peculiar form of annular burner, similar to those sometimes used in producing the oxylaydrogen light, but provided with an adjustable tip on the end of the outer tube, as abown



THE SPEAKING PLAME.

After connecting a mouthpiece with the outer tube, by means of a piece of rubber tubing, and connecting the inner tube with a gas burner in the same way, by making sound n the mouthplece I succeeded in producing in the rotating nirror the clear, sharp-cut flames shown in Fig. 5, whilely were entirely satisfactory, and which will be treated further

In testing this apparatus I observed that the burner emitted low tones, like those made in the mouthpiece. By careefully adjusting the cup to the outer tube of the burner I succeeded, without a great deal of trouble, in getting the flame to reproduce distinctly any tone made in the mouthplece. These tones were evidently produced by the minute and mpld explosions of the gas as it was relit after being ex-



tinguished by the round waves emerging from the annular orifice of the burner. This flame should not be confounded with the well known singing flames, as they each have an in-dividual tone, whereas this flame will produce any note in

While sounds can be clearly heard without a resonator of any kind, yet they can be greatly re-enforced by applying a long funnel to the burner, as shown in Fig. 1. After having nicely adjusted the humer, I was greatly aurprised to hear the flame reproduce a melody as loudly, clearly, and beaufully as the singing telephone, and with the characteristics of the singer's voice plathly distinguishable; but what was my astonishment when the flame made articulate sounds as words were spoken into the mouthpiece. Scarcely believing my own cars, I placed between the burner and mouthplece thirteen feet of rubber tubing, and carried the tube through two walls, so that none of the sounds could possibly be heard from the mouthpiece; still the flame talked in an intelligible

way. By a preconcerted signal I was most happily assured that at least three fourths of the sentences attered in the mouthplece and reproduced by the flame were understood To determine whether the articulation was wholly due to the flame, the gas was turned off, but no sounds from the



MANOMETRIC PLANE APPARATUS.

piece could be heard at the orifice of the burner. On relighting the gas, sounds were produced as before. The flame has a peculiar appearance when singing or talking; its hame and a pecuniar appearance water storing or making, ... ghastly blue and its weint sounds are suggestive of the su-

Since discovering the sound-producing capabilities of the flame, I have observed many peculiarities, and some difficulues to be surmounted. All of the breath used in production the sounds must enter, the mouthpiece and be propelled through the tube and burner. An explosive sound at first extinguished the flame entirely; but a short sift cut in the rubber tube near the mouthplece afforded an escape for the overpressure, so that a word beginning with an aspirate or a consonant could be pronounced without extinguishing

the flame. Much depends on the direction of the wind as it escapes from the annular orifice. It should pass from all sides diagonally across the tip of the inner tube or gos burner.

When this burner is employed in producing manometric flames, the ordinary two-sided revolving mirror, shown in-Fig. 3, is used. When it is revolved behind the burner, as shown in the engraving, it may be made to exhibit all of the phenomena of König's apparatus, and in addition to this some effects may be produced which are peculiar to this apparatus. Defects in the vocal organs show themselves in the character of the flame. While a clear voice or a musical instrument will produce the clear-cut flames shown in Fig. 5, a hoarse voice will produce a small extra flame be-



tween the bases of the others, and a "busky" or dry voice will produce a fuzziness at the sides and point of the flame. A trill, made by saying t-r-r-r in a high key in the mouthpiece, produces a flame which, in the revolving mirror, appears like that shown in Fig. 6, and by inclining the burner at a proper angle a figure will be produced which resembles a golden rope (Fig. 7) whose strands are fine or coarse as the pitch of the sound is high or low. In addition to these most beautiful, flame figures, the waves (Fig. 8) are produced by making a loud tone of low pitch in the mouthpiece. The waves, which are fire tipped, are of a gorgeous blue, as is also the band from which they rise.

A beautiful effect is secured by using the mirror shown in Fig. 4, which is simply a disk mounted on a small shaft, and arranged at a slight angle with the plane of rotation of the shaft, so that when it is turned it will "wabble" and produce a blue crown with golden tipped flames. By connect ing the burner with a flute, as in the illustration, very sharp and clearly defined flame points will be formed.



Fig. 7 .- A GOLDEN HOPE.

In all of these experiments the band from which the flames spring, as well as more or less of the base of the flame, is of a brautiful indescribable blue.

The Silk Thread Electroscope,

To the Société des Sciences of Nancy, M. Ramer u. of-cently introduced a very simple and sensitive electroscipe. It consists of a fine fiber of white allk, fixed at one end by means of a little wax to any support, and free to oscillate in any direction under its point of attachment. A single thread would, of course, suffice for the ordinary purposes of electroscopy properly so called, but it is preferable to employ two near each other, taking care to space them so that they cannot foul each other during their swing, or influence each other reciprocally. One of the thrends is charged by means, of a glass rod with positive electricity. The other is charged by means of a stick of resin with negative electricity. Every body which attracts one of the threads so charged, and repels the other, is necessarily electrified. Its electricity is of the same sign as that of the thread which it repels, The sensibility of these electroscopes is greater, within certain limits; as the thrends are made finer, longer, and less conducting. If the finest sowing silk of commerce be unwisted, each of the parts or strands obtained will make an xcellent electroscopic pendulum, which, if about 2 feet long, is very handy, and suffices for almost all tests. White silk is prefemble to colored. The motions of these threads, if well charged, are considerable, even when the bodies presented to them contain but slight charges of electricity. When the thrends are not excessively fine, disturbances of



CIRCULAR MARRO supposed M. Rameaux has found this arrangement in all cases more sensitive and sure than a carefully constructed gold leaf electroscope which he used for comparison. This system also recommends itself in several ways; for instance: It is so simple that every one can construct and use st. 2. It costs nothing, no special support being necessary. The threads can be fixed to any projecting piece, as the edge of a table, the only condition bring that they may hang freely. 3. It can be set up in a moment, and consequently is at once ready for any unexpected requirement; whereas a gold leaf electroscope long unused requires to be dried for hours, 4, It works perfectly, whatever the hygrometric state of the atmosphere. 5. It can be employed to show electric phenomena to a numerous suditory. With long thin fibers and highly electrified bodies the experiments are very telling.

ny Intrue Sep 3.78

Mr. Editon's peculiarities were strikingly illustrated recently as a plaster cast of his head was later taken. While the work will a progress he embryed his time in experimenting as to the sound conductivity. of the wet and drying plaster, and in com-with those about him by a telegraphic instru-he could not see.

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chingo Dec

Me Tribune.

SATURDAY, AUGUST 31, 1878.

Mr. Edison is used to heardlyfous, but it does not appear that he bearing their of his French-horn-playing phonocripts.

The phonograph that is on exhibition copo-site to Trin Trainuss collect to for sale,—at least all our right, hid; interest, etc., when-ever that may be, can be had cheep if imme-diate application be mode. Per 88 mortal works it has shouted "Whos. Reman," "In Cont. Jusius of the How. Capt. Junks of the Hoss Marines," "The Last Rose of Sammer," Speece By-and-By," and other Inpillar sours and speeches until Lets Rose of Sammer, "Secret oppositions and other fupilities source and other fupilities source and other fupilities source and other fupilities are sent to be a finished to be a finished to be a finished to be a finished to be a finished to be a finished to be a finished to be a finished to fine others a change that we lide it is all soon "more on." [The proportion of that soon "more on." [The proportion of that soon is not one of the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the sound is not the sound that the

usual rates.] Elisan, tre intra from an exchange re Remange Du

THE SUNDAY TELEGRAPH SUNDAY AUGUST IN IT'S (PLANS

THE GAINS OF GENIUS

THE PRINCELY "BOYALTIES" ENJOYED BY EDISON.

The Western Union Seizes Upon Ilia Inventions-A Contract for Thirty-four Years-Costly Experiments.

WITH THE SCIENTISTS. Tom Edison was here yesterday. He was dressed in granger style; his face was sun-burned from exposure during his California trip, and he appeared more like one of our opulent farmers than the inventor of world-wide fame that he is, Edison was in St. Louis on Friday, where he went to meet with the scientists. He had three papers propared for their instruction and edification, "Tom" said he selected an hour when he thought no one would be around, but when he went upon the platform even the galleries were densely packed. "I couldn't very well back out then, you see! so I read one paper, and left the others for somebody elso to figure out," said the modest in

Mr. Edison left for his home, Menlo Park, N. J., last evening. From an intimate personal friend, a few facts of general interest relating to Edison's income from his inventions were obtained by a TRLEGRAPH reporter.

HOW INVESTIGN PAYS. When Edison first began to display the rosults of his marvelous genius, the Western Union Telegraph Company made a contract with him for the option to purchase or operate, "on royalty," all his inventions relating to telegraphy all his inventions relating to telegraphy, that company agreeing, in conjunction with the Gold and Stock Telegraph Com-pany, to pay him six hundred dollars a pany, to pay him six hundred dollars a month, this covering merely the option to buy, at a price to be agreed upon. This is a plausant plum, and one that Edi-son well deserver. Under this contract the Western Union took Palison's earbon

raph royalities have also been sold for ustralia. China, Jopan and the West idies. The income of this young man, he is but 31, will.

when is but il, will. of the young imm, young imm, you will not be a proposed to be a propo

has well as those who use these infringing limitations.
Edison has suffered from similar acts of piracy on the part of a Johnny Bull who is connected with the pectal telegraph system of Great Birdin, who, claiming to have invented an instrument similar to Edison's tachneter—that strange little piece of mechanism with which in theissures the

sciences Hille place of mechanism with Ellistication of THE STAIR. Ellistication of THE STAIR. Ellistication of THE STAIR. Ellistication of THE STAIR. Ellistication of THE STAIR of THE STAIR of THE STAIR of THE STAIR of THE STAIR of THE STAIR OF THE STAI

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The Tribune.

MONDAY, SEPTEMBER 2, 1818.

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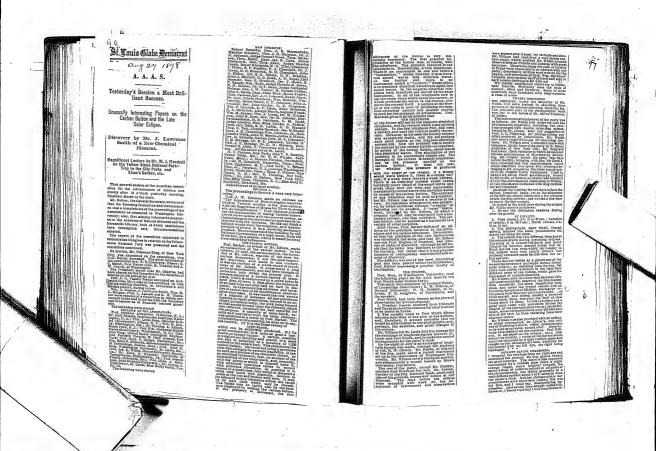
STYREAL MODE OF APPLIES INTO HITMOREGRAFT IN REVERS.

To the Eddler of The Tribune.

Cineado, Aug. 31.—In these days when the rise and tall of bodily temperature may be accorately determined by the thermometer, higheroflerapy (resament by water) and boline-higheroflerapy (resament by water) and boline-higheroflerapy for the property of t hydrotherapy (treatment by water) and boluco-therapy (treatment by haths) receive the uni-versal approval of the medical protession as highly important agents in the treatment of fevers, and pellow fever is no exception. The following are some of the methods of

Frequent cold sponging. This is the least effectual, but does much to soothe the dry and

effectively lost does never be readed to the first year of the mean time and the second to read the second to the



Let a start may be fast they have absorbed by the control of the c

aon my sill serour-head without any ex-boration. Decicits of Transcarce, made in burst beckets of Transcarce, made in burst is the party had, and a copy in oil of the is may exhibited by Prof. Rev. Prof. Rev. hy of the country of Drapper's pho-hy-city of the country of Drapper's pho-to-copic view by Mr. Wilstone it with the even of the prof. Wilstone of the country of the profit party positively through the terr form party positively through the terr angular profit is the profit of their arranguments complete the owner. andle there are no the paper was deferred buts. The GERNALD on the paper was deferred but a THE GERNALD SUPPLY OF THE GERNALD SUPPLY OF THE SU SECTION B Todd. -- speeds of the Missouri, James M.
As we the ac-called Chuttetes of the Cincinnati
Group Bryconni's (read by title), A. U. WethRemarks on the Georgaphical Distribution of
the Land and Fresh-water Mellioute. consider the Geographical Distribution of Land and Presh-water Mollusks of the Unitates and their local varieties, A. G. Wethted States and their lord varieties, A. G. Wette-crty.
Remarks upon the Archmology of Vermont,
The Relation of Achiesion to Horizontal Pres-sure in Mommain Dynamics (read by title), R.
F. Walling, A. The six distance of Advisories in Professional Protract Six distance of Advisories in Professional Procession of Committee

LILLUSTRATION

17 AOUT 1878.

Thomas Aive Edison.

Edison naquit au mois de février 1847, de parents peu fortunés, exerçant la profession agricole à

Milan, dans l'Ohio. Il no regul d'autro cuication que celle des écoles primaires, et, forcé de gagner son pain dès l'âge de onze ans, il se fit marchand de journaux à bord des trains qui circulent sur le Great Tranck Railway.

Après quelques années de ce connuerce, il concut l'idée de noircir lui-mème le papier qu'il vendait aux voyageurs, et il créa une fenille ambulante qu'il tirait à la brosse après l'avoir composée avec des caractères dont il avait fait l'acqui-

Cette' spéculation originale ent quelque succès, et Edison arriva bien of à un tirage hélidomadaire de sept cents numeros. Mais il ent la malenconir use idée de public-une histoire scandaleuse arrivée à une dame habitant une des stations du railway, ce qui lui attira une facheuse affaire, à la suite de laquelle il renonça au journalisme. Edison se fit alors télégraphier;

il entra dans un des bureaux de la route en qualité d'opérateur de

La vue des merreilles de l'élec-tricité stimulant son génie inventif, il proposa à son chef de construire un appareil qui permettrait, à l'aide d'un seul fil, de transmettre simultanément une dépêche dans chaque sens.

Cet homme crut que son em-ployé avait perdu la tête, et, érai-gnant qu'il no se livrât à quelque acte de folie compromettant, il lui

donna son congé. Cette invention fut volée à Edison par un person octte invention fut_voice à Edison nat; un person-nage qui prit sans faron un brovelet son non. Edi-son réclara inutilement et dut reprendre le mélier d'operateur.

d operateur.

L'affaire, ayant fait quelque bruit, Edison trouvamoyen de persuader à son nouveau patron qu'il avaiimaginé un excellent moyen pour permettre à deax
trains de communiquer l'un avec l'autre. Bal conduites, ¡les expériences aboûtrent à une collision
and les contractes processes de l'accession de la contracte de l'accession de l'acc dont les consequences furent graves. Edison n'ent que le temps, de se sauver.

Malgru ces debuts peu encoungeants, Edison con-linua à produire inventions sur inventions. Il faudrait éerire un volume pour suivre l'Ingénieux Américain dans son étomante enrière. Nous directions son étomante enrière. Nous directions des estelements (1911) posséde actuellement à excession l'article de la contrain de l sont constamment attachés, et où sa seule occupation est d'inventer.

Il s'est même associé à cet effet un ouvrier méra-



LE MICHO-TASINGTRE D'EDISON.

The control of the co

nicien nomina Bacheloret un ancien natolot nomine Adams, qui le représente activellement à Paris.

Ellison est ompete par la companie délégrabables de Western Union; qui lui paye, un subrire de 100 dellar a nor semaine, afin d'avoir le d'aroit e lui acheir ses invenions électriques, a pris flui pay un arbitre. Si la comagagine resonice à externe ce droit; Ellison a le droit il exploiter directement. C'est ainsi qu'il est resté propriétaire du brevel de la plume électrique. Quant à celui du phonographe, qui n'a rien d'électrique, la compagnie n'a pas cu

dut in a rear de certaine; a s'en occuper.

Au lieu de venir à Paris pour jour d'un triomphe si blen mérité par ses inventions, Edison a fait, en royage des Montagues Rocheuses à Poccasion de la grande éclipse du 29 juillet:

raient pas, il y a trois mois à peine, posseder un jour. Nous expliquous ci-dessous le mode de fonction-

nement de cet appareil., W. DE POSSIELLE.



Le Monde de la Science & de l'Industrie

- JOURNAL POPULAIRE DES SCIENCES, DÉCOUVERTES, ARTS ET INDUSTRIES

1 Vol.

14 AOUT 1878

PORTRAITS COMBINÉS

NOUVEAU SYSTÈME D'ANTHROPOLOGIE

M. François Galton a récemment présenté à la Société anthropologique de Londres une notice sur les images composees que l'on obtient par la combinaison de plusieurs portraits en un seul.

L'auteur nons apprend qu'en superposant exactement les luages de plasieurs personnes. Il est aisé d'obtenir, par la photographic, un portrait commun qui a des traits emprun-

tes à chaque figure

Yoiri les procédés à suivre: On choisit de préférence des sersonnes qui se rattachent à un même type. On fait leur photographie dans la même attitude et les mêmes proporons. Ces diverses -photographics, l'une après l'antre, sont nlacces sous deux fils tendus qui se croisent de manière à ladiquer, l'un la ligne des yeux, l'autre celle du nez. On pralique alors sur chaque image, dans leur bord supérieur, leuv trous qui serviront de points de repère. Il n'y a pins maintenant qu'à les suspendre, en les enfilant dans deux urges épingles, contre un écran que l'on placera devant la ambre noire photographique,

Supposons que l'on nit 10 portraits et que la pose devant la chambre noire doive être de 100 secondes. L'opération anneucée, il famira enlever les photographies les unes rès les autres, à chaque 10 secondes d'intervalle. Les traits dividuels des figures s'effacent et disparaissent, pour ne isser voir qu'une seule image parfailement régulière et afermant les lignes communes aux dix visages.

Les spérimens présentés par M. Galton étaient très-réussis, On comprend tout le profit que sont tirer de ce nonveau ocedé photographique, soit l'anthropologic pour obtenir des pes d'une même race, soit les familles pour avoir des vrais tiraits de famille avec leurs traits caractéristiques, soit les niculiers pour se procurer des photographies ressemblannaison de plusieurs de leurs portraits.

HUGHES ET EDISON

Nous avous dit quelques mots, dans notre dernier unnéro, de l'accusation de piraterie portée par M. Edison nire M. Hughes, au sujet de la déconverte du microdone. Voulant rester complétement neutre dans ce débat; pae nous regrettons vivement s'être élevé entre deux tvants aussi distingués que le sont MM. Hughes et Edion, nous reproduisous la réponse qu'a adressée le preder à un de nos confrères i et qui est suffisamment prése pour que chacun puisse se faire un jugement sur les gations de M. Edison, Voici la lettre en question :

Londres, 26 inin 1878. " Mon cher Monsieur Varey,

· Je vols avec regret que M. Edison se croit le droit d'afmer qu'il est aussi l'inventeur du microphone, et cela,

1. La Correspondance scientifique. Journal des sciences appliquées, dirige par. M. Ch. Varey, France 20 fr.; étranger 25 fr., par même avant moi, simplement parce que, dans son téléphone, il fait usage de charbour de cornues à gaz et que, par les variations de pression d'a diaphrague sur le charbon, on opère une variation de courant.

Le principe de mon microphone repese sur. l'action moléculaire d'un conducteur quelconque placé sur du bes ou sur un corps résonnant capable de recevoir et de jurisger des vibrations, et un courant qui doit varier en rapport exact de force et de forme avec les vibrations moléculaires qui agissent sur le bois on sur le corps résonnant.

Dans le microphone inventé par moi, il n'y a pas de diaphragme ni aucune variation de pression du diaparagme sur le comincient; tous les métany agissent anssi bien que l'autre, à la condition que lour surface ae soit pas oxyaée. L'or, le platine, cie., donnent des résultats excellents, seulement l'ai preferè le charbon de coranes à gaz, jarce qu'on peut se le procurer plus facilement et à bon marché.

Ge charbon a tonjours, été employé dans les piles électriques, justement parce qu'il est corps non exydant; c'est encore la raison qui ne l'a fuit choisir, dans mon microphone. comme point de contact.

« Entre mon microphone et le téléphone de M. Edison, tont differe de la fayon la plus absolue; principe, forme, résultats obteuns. Je crois donc avoir le droit d'employer les métanx on les conducteurs dont les propriétés sont conet par consequent dans le domaine public. Si J'avais supposè un instant que M. Edison ponvait seul curployer, comme contact, du charbon de cornues, rien ne m'empéchait de choisir un métal, le platine par exemple. Mais, l'objet du telephone de M. Edison clait d'obtenir une variation de courant au moyen d'une variation de pression sur un diaphrague, ci comme je n'emploie pas de diaphrogue, que la forme do mon appareil differe de la forme de l'appareil de M. Edison, que, comme je vous le disais plus hant, le principe même est different, je ne vois pas la moindre accessité d'abandonner l'usage du charhou sur une simple réclamation mai fondée de M. Edison.

. Dans votre dernier numéro, mon cher Monsieur Varey, vous publicz, d'après le Figaro, une dépèche de M. Edison,

· Pai envoyé des microphones à M. Precee et à M. Hughes, il y a deux mois, et aussi des descriptions de cet appareil. Il y a abus de confiance de la part de M. Hughes dans cetto affaire. Attendez des preuves. »

« M. Edison ne m'a Jamais envoyé de microphones, pus plus qu'aucune lettre ou aucune commo · D'un autre côté, M. Precce soutient qu'il n'a reçu de

M. Edison aucune confidence à ce sujet. « Il y a environ deux mois; M. Edison avait envoyé au Post-Office, le dernier et, d'après lui, le meilleur exemplaire de son téléphone à charbon; c'était public et j'ai vu ce féléphone qui était présenté par Adam, agent de M. Edison, à Londres. L'appareil était bien le même que celui qui avait été décrit dans tous les journaux. Il ressemble, comme forme, au téléphone du professeur Bell. Il fonctionne, comme on la sail, au moyen de la pression du diaphragme sur un bouton de charbon; seulement, il a besoin d'une bobine d'induction, et les résultats qu'il donne ne sont pas supérieurs à ceux

obtenus avec le téléphone du professeur Bell. « La réception du téléphone Edison est une conie exacte. el comme forme et comme principe, de celui de M. Bell, et



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THE ON THE THE SUM THE even those of Prof. Young; her he was not to be besten. Driven from one instrument he tood up south the Driven from one instrument he tood up south the left of the profit of the left of the left of the left of the left of the left of the left of the left of the left of work in flower eclipsic open out another new line of work in flower eclipsic open out another new line Rumont here says that one distinguished the left of t former letter!

> THE PHONOGRAPH AND VOWEL SOUNDS III.

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The sound \vec{u} consists mainly of one tone generally lying in

1 Continued from p. 202.

August 22, 1878]

NATURE

same. There remains the fact that speakers and heavers were strongly tones lying anywhere between g and /. This cavity same. There remains the fact that speakers are nearers were unconscious of any generic change in the vowel \hat{a} when the pitch of the strongly-reinforced partial changed by a whole

sense. There examine the fact that peakers and husters were second-core of any generic charged part of the second peakers of the strongly-relational part of the second peakers. The strongly-relational part of the second peakers of the second peakers and the second peakers are the second peakers and the second peakers are the second peakers and the second peakers are the second peakers ar

indispensable.

If we assume that the #cavity is absolutely con-tant, we must describe it as a cavity capable of reinforcing more or less

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Fig. 1,1—Wave-forms of 5 Sung by the same Voice at Various Filches.

I'We reproduce this week the figure which accompanied Prof. Jerkin and Kong's first paper, on "The Warre-Form of O," p. 12s. It shares the delicate forms of the cursus wide presire reastractures, and will comble the reader to understand more [clearly the value of the conclusions came to by the anthren-form.

WORLD OF SCIENCY AND ART.

FRIDAY, AUGUST 23, 1818.

Modal-giving at exhibitions will fall into dis-ropate if greater care is not taken in making the awards. Loud complaints come from Paris as to the treatment accorded to certain English exhibitors, and the michlerons "joke" of and the freatment seconds to certain legislation printing energy line he bearings of the engos printing energy line he bearings of the engos printing energy line he bearings of the engos to the second printing the second print

THE PARIS EXHIBITION

INTER PARIS EXCHIPATION INTERPRETATION xpension at will.

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ENGINEERING. FRIDAY, AUGUST 23, 1878.

THE TELEPHONE AND MICHROPHONE. THE APLIATIONSE AND MICHIROPHIONE.

SILE—Allow me to state that by the said of a Higher's michrophons at transultire (with tastery), a telephone consisting of frame, cold, and vibrating disk, but no suspend or other pleter from, will deliver speech shintlefly and with moderate londness. I am not paure of a similar result having been noted before. Yours obediently,

402, High Street, Brentford, Aug. 17, 1878.

TELEGRAPHIC PROGRESS. On Recent Advances in Telegraphy.*
WILLIAM HENRY PRESER, Memb. Inst. C.E. The Victoria Harm Parent, "Marging Cap."

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THE ENGINEER

Aug. 23, 1878.

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A DETONATION OUTSIMPER.

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has of the plates, and from that time the level of the water oscillates between the bottom and the top of the plates. The water is decomposed at the bottom and recomposed at the top, water is decomposed at the continual recomposed at the top is a second of the plates. The second is a second of the plates and the top is a second of the plates and the top is a second of the plates and the second of the plates are to the plates and the second of the plates are to the plates and the second of the plates are the second of the plates and the plates are the plates and the plates are the plat

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THE POLYTECHNIC REVIEW.

[Aug. 31,-1878.

Edison, the inventor of the Phono-

The inventor of the phonograph, Thomas Alva Edison, was born in Ohio thirty-one years ago. He commenced his enterprising career as a newsboy on the Grand Trunk Railway. Very soon he had obtained a monopoly for the sale of papers over the line, and employed four boyassistants. By and by he conceived the idea of publishing for himself. There was an old, abusing for timises. There was an old, pringless car, with a smoking-room, attached to the train on which he sold his papers; and as no one would travel in it, Edison got leave to use it, He bought an old press and a quantity of type fitted it up in the smoking-room, and regularly issued a small weekly print called the Grand Trunk Herald, price three cents, containing gossip of the neighborhood, accidents, and other matter. George Stephenson, at work on the Montreal tubular bridge, found Edison engaged on his paper, and was so pleased with the boy's carnestness that he ordered an extra edition for himself. This connection with the press introduced him to the telegraph, which he straight way determined to master. Having learned how to send and receive messages, at the age of seventeen he obtained a situation as telegraph operator in Stratford, Canada. Thence he went from city to city of the States-west, south, and east-Cin cinnati, Indianapolis, Louisville, New Orleans, Boston, and New York, leading an unsettled operator's life; now being discharged, now leav. ing of his own accord. All his spare cush and time were spent in providing experimental electrical apparatus to illustrate his studies or to try some of the original ideas which thronged his brain. At Indianapolis he produced his first inventive success, an automatic signaling instru ment, and at Cincinnati in 1805 he perfected a diplex system for sending two messages in contrary directions over one wire at once. He was Jurecuous over one wire at once. He was a-pooled and ridiculed until he went to Boston in 1868, where an appreciative superintendcan in too, where an approximate an interest of the office recognized in him the fire of suppressed genius. It happened that eight years ago there was unusual excitement in the gold market, and at the climax of the hurry the company's indicating instrument broke down. The superintendent was out, and no one could set it In the midst of the confusion Edisor

stepped up and volunteered to do it. The manager looked somewhat dubiously at the newcomer; but the emergency was great, and Edison's offer was accepted. In a few moments the instrument was working as before, and Edison was forthwith engaged at a good salary in the service of the company. From this time his career is that of an electrician and inventor. He soon patented several valuable inventions, and became well known, was appointed Inventor-in-Chief to the Western Union, the colossal telegraph monopoly of America, and to other companies. Two years ago he retired to Menlo Park. a sequestered spot on the Pennsylvania Italiway. twenty-four miles from New York. His estab lishment here consists of his laboratory, dwelling house, and the cottages of his workmen, including a restaurant started by a smart Yankee for the convenience of Edison's visitors. The laboratory is a plain wooden building, two stories high, isolated on an eminence. The lower part is occupied by Buison's office and library, and a mechanics' shop, where a dozen fitters are forging and haping his ideas into iron and wood. Up stain is the laboratory proper, a long room lined from end to end with an array of chemicals. On tables and in show-cases about the room are lying all manner of telegraphic apparatus, lenses. crucibles, and pieces of his own instrumentstelephones, phonographs, and aerophones. A perfect tangle of telegraph wires from all parts of the Union is focused at one end of the room. An ash-covered forge, a cabinet organ, a rusty stove, with an old pivot-chair, a table well stained with oils and acids, complete the furniture of this curious den, into which the sunlight filts . through the clowdeal jam, and falls in nar colored pas-5a/s'on the dusty floor. The moving spirit of this place by day and night is best described as an overgrown schoolboy. His face is pale and beardless. His nose and chin are well shaped and prominent; his mouth thin; his forehead ull and expansive, but not high; his hair is do chestnut brown, and alivered with gray. The nost striking feature of his face are his eyes which are blue-gray, deep-set, intense, enetrating. His smile is boyish and it, and his manner somewhat shy. Edlson is an inventor by sheer dint of native genius. His scientific knowledge of electricity is by no means thorough; mathematics are repulsive to him. As soon as his mind lights upon any new or peculiar fact, at once he conceives an application of it. The phonograph was discovered in the following manner: He had invented an apparatus for recording ordinary telegraph signals by a styluson yielding material, so that the record could serve to retransmit the message automatically. One day, while experimenting with a vibrating telephono diaphragm to which a pricker

force of the vibrations, and drew blood. In an instant there flashed into his mind the idea of the phonograph. He saw that the voice had power to cause a similar pricker to indent its vibrations in a sheet of tinfoil, so that they could be automatically reproduced. As proof of bis power of work, it may be further said that the idea of the phonograph occurred to him one Wednesday afternoon, and he worked on all Wednesday night, Thursday, Thursday night, Protos and Friday night, till Saturday morning By that time he had constructed a completely successful phonograph; then he went to bed, and slept with hardly a break till Monday morning. Edison has been described by the United States Commissioner of Patents as the young man who has kept the path to the Patent-Office hot with his footsteps. During the last ten years he has taken out 157 patents, and applied for seventyseven more. Of these, however, outy Litem or twenty are important inventions, the rest being obtained to fence them round. His yearly, income from his patents is now over £10,000 ; and he has realized in all over £30,000 from them. This sum has been sunk, as soon as it was carned. on books and experiments. As for the phonograph, his faith in it is boundless. In future, he believes, letters will be talked, books read, sermons preached, languages and music taught, parlor operas played, announcements made, and reporting done by phonograph. Voice-albums will become the fashion, and the memorable words of great men will be treasured in muse ums. ""There was a fortune in the Pope's last blessii?t" says Edison, somewhat i-verently; "the phonograph record of it, muo, "ed by electrotyping, would have sold for five dollars a piece easily." It is said that Doré gets suggestions for profiles from the shadow of a niece.of crumpled tissue-paper thrown on the sunlit ground: and so will the phonograph, driven backward, hint all manner of new musical com binations to the musician. Elison is now making? one with a sapphire point, which will record even a whisper, and contain a complete novel of: Dickens's-50,000 words-on a sheet of tinfoil 10 2 in, square. There are other marvels yet to come. By the aerophone he hopes to makes ships converse at sea, though several miles apart; and his boost is that he will make the statue of Liberty. to be set up in New York harbor, read the declaration of independence so loud that all Manhattan Island shall hear it. Another new thing is the "mega-phone," a kind of small cartrumpet, doing for the ear what the opera-glass; does for the eye: and slightly deaf as he inclines to be, Edison declares that by its aid he can hear a cow chew her cud an eighth of a mile distant. These are things of the future. Meanwhile it is enough that his actual achievements stamp him

as a prodigy in mechanical invention.-World.

was fixed, the pricker pierced his finger by the

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Plate on next Page



NEW YORK, PRIDAY, SEPTEMBER 6, 1878.

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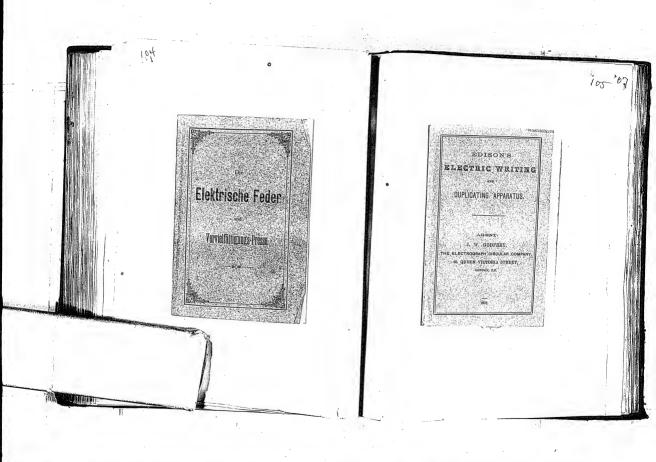
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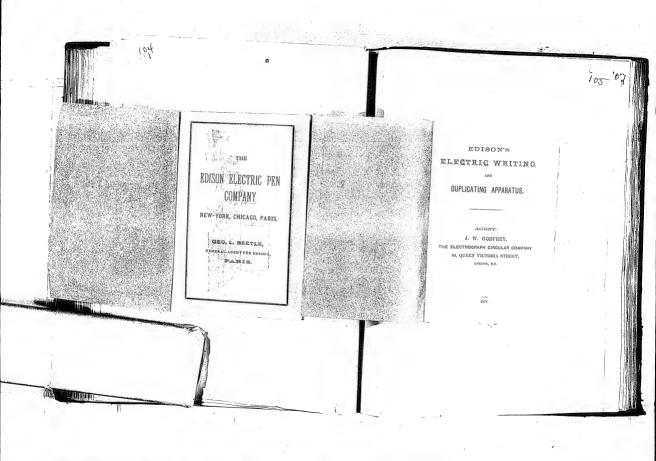
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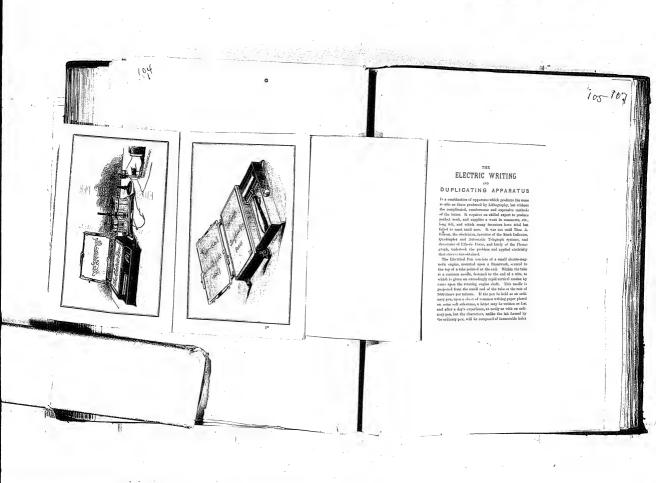
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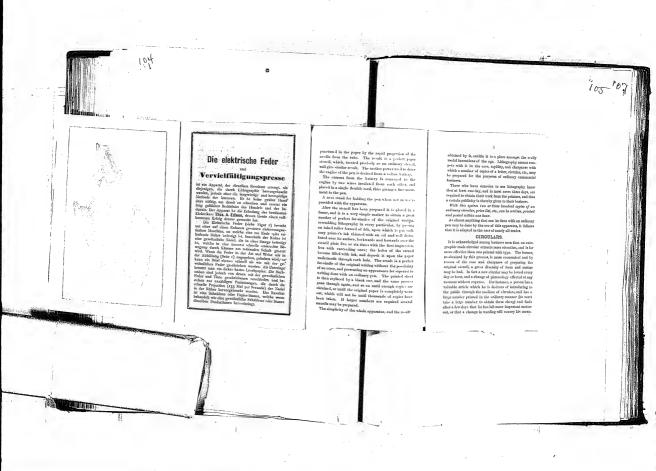
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Lichtigkeit, Schnelligkeit und Billigkeit, mit welcher
eine Anzahl von Copien von Briefen und Circulairen
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lichung dem Geschäfte gegeben wird. Durch dieses System klainen zwellundert Copteh von einem gewöhnlichen Greutlire, Preis-Liese etc., geschrieben, gedruckt und auf die Post gegeben werden innerhalb einer Stunde.

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ing better, and add to the effectiveness of the elecular; he desires to change it; to do so he is obliged to thour aside his expensively produced matter, and duplicate it in an equally telious and expensive manner, whereas by the use of the duplicating press he can print his circulars as he wants them, and if any change in the wording or form is desired it can be done in a few moments without expense. For daily PRICE LISTS

MARKET QUOTATIONS

It is invaluable, as it allows the circular to be kept open until after business hours, and a few moments before the closing of the mail. For

CIRCULAR LETTERS.

It has the advantage that it can be prepared by the principal of the house, thus endowing it with an air of authority and avoiding the publicity of the printin; office as previously mentioned,

PAMPHLETS.

Where the quantity of the matter is not too great, are quickly and cheaply produced by this process. While for Auction, Book and Trade Sale

CATALOGUES

where but few copies are needed the printers cannot

PRINTERS

May use it to great advantage. Complicated ruling and blank forms, obtained in country printing offices by metallic column rules can be dispensed with. A steneil sheet, formed of lines, columns, etc., can be made in a few moments by a straight edge and the electrical nonuberefrom several hundred duplicates can be taken, and the lined matter afterward printed on in the job press, It also gives each job office facilities for producing lithograph work without the expense which the latter entails.

LAWYERS' BRIEFS. CONTRACTS

LEGAL DOCUMENTS

of every description can be expeditionaly and eronomically produced. It is already largely used by lawyers for that purpose. No mistakes can possibly occur, as frequently happens when the reduplication is done by copyist. It is the only practical method of preventing error in the duplication of

MANIFESTS.

which has any degree of practicability. Many railway companies have adopted it for this purpose with great natisfaction. The large presses generally required for such work, owing to the large size of the forms used, are made to special order.

LABELS, LETTER AND BILLHEADS, ENVELOPES.

and innumerable varieties of small printing may be done in an artistic style according to the expertment of the writer, thereby effecting a great saving in printing 13112

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Für tigliche

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Circulaire, Briefe etc. hat sit den Normist, dans die Schablene, derch den Chef, das Llauset, in eigener Handschrift gemeient werdes bann, das die Osffanlichkeit, die diesellen wie selnen obes eingegeben, deur die Osffanlichkeit, die diesellen des Bannes der Schablen obes eingeweben, deurch Derckern in der Druckere erhalten, vernieden, werden, kaum.

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Contracte und gesetzliche Documente von joder Art schnell and billig bergestellt werden. Sie ist bereits umfangreich von Juristen zu diesem Zwecke gebraucht. Es deulh sich kein Fehler einschleichen, wie es häufig der Fall ist, wenn dies selben durch Copisten copert werden. Es ist die ein-tige praktische Methode, um Irrthümer in der Ver-

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Karten and Plane

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Zelohaungen für Mechaniker und Architekten

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MAPS

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ARCHITECTURAL.

MECHANICAL DRAWINGS

are produced with facility, and tracing from drawings. sketches, designs, etc., previously prepared in ink, ere made by merely passing the electrical pen over the ink marks,

While it is not claimed that the fine shading of lithegraphic engraving can be produced with the pen in the hands of an inexpert, it is claimed that for all practical purposes it will produce sketches and pictures by outlines, which is all that will generally be found necessary. Dispant

BILLS OF PARE

may be produced by an expert penman and the use of different colored inks, and by rapid writing with the pen are made to present an unique appearance. By its aid the composer and arranger of music is embled to duplicate

MUSIC

of the most complicated character, now so largely done by hand, owing to the cost of reproduction by other

INSURANCE FIRMS having the agency for a number of companies frequently require a dezen copies of the same policy made out on the forms of the different companies. This may be done by a special press designed for the purpose, neatly and expeditionally, resulting in the seeing of a clerk to many firms. For insurance reports, notices to subagents from general agents, and the small private printing of the company generally, it is involuble.

CYPHER BOOKS.

PRESS REPORTS.

FINANCIAL EXHIBITS.

and every conceivable variety of printing, it is obviously adapted, and the experience of each day brings to light some special work among the trades for which it is adapted and which were not previously thought of. For instance, it has been found that it may be made to replace the expresive and combrons marking machinery used for marking embroidery work upon cloth, and for duplication of dress patterns, etc., a larger pen and press than the popular size being used for the purpose.

BANKS

It will be found almost indispensable, and in the preparation of blanks alone will save its trifling cost in a few weeks. It is also used to a great advantage in printing the form of endorsement on drafts and chreke.

EDUCATION

AMUSEMENT

of the youth it is without a parallel, in view of the

_ 10

Huslk,

die in so grosserigem Massscabe per Hand duplicht nind, kann mit der Feder und der Proson vervielkti-

Versicherungs-Compagnien bedienen sich derselben zu deren grossem Vortheil zur Verriefühligung über Circutalre, Briefe an Agenten ein etn. Fäg

Chiffrirte Blicher, Press- und Finanz-Berichte

and eine Menge anderer Druckarheiten ist sie ausand the Mange andster Drucktrischen ist sie aus-senudenätisch inch. E. Jur Einsteinig der kon-spisigen, und schipfischen. Vorrichtungen, im Sitch-rauser auf Leiten und verwichtungen, dem Sitch-manzer auf Leiten und der Verwichtungen dem Sitch-Mode-Museer, neutricht ist dass eine grössere Poder und Preuse abfülgt, welche auf Bestellung germeint wenden bassen.

Für Banken ht sie mantielebitek und man erzpart den Freis der-selben durch Anferdigung der unstädigen klehten Druckarischen in seutgeng der unstädigen klehten sieh känig zum Bruckern Merchen. Sie wird such sieh känig zum Bruckern der Greiten für Indoordrungen ein Westelben und Christs gelenatiek. Für die Erzichting und

Unterhaltung

- 11

irgend ein Theil kann auf Bestellung bezogen werden ührlist es daher nicht nöthweistlig, den ganzen Apparat grosse Strecken weit zum Reparlten zu senden.

INSTRUCTIONEN.

Einer joden Presse ist ein Instructions-Buch bei-Einer jeden Presse ist ein Instructions-Buch beigegelent, in welchens eine vollständige Bescheidung
des Apparates, nebat Andertung zum Anwenden dessellsen enthalten ist, sowie auch Instructionen zum
Anfertigen der Flüssejkeit für die Risterie, Ermenerung
Anfertigen der Flüssejkeit für die Risterie, Ermenerung desselben und was zu thun ist, sollte ein Unfall vor

PREISE.

Es trunden zwei Grössen von Pressen fabricist. Presse Nr. 1. 029×0.18 ft. 125 192 240 48 , Nr. 2. 0.37×024 ft. 150 220 275 55

Grösse Pressen werden auf Verlangen gemacht. Preise für besondere Preisen, sowie jede andere Aus-kunft werden bereitwilligst ertheilt.

Entscheidung der Ober-Postbehörde der Vereinigten Staaten von Amerika.

Dem Rechtsgutachten des Assistent-General-Anwaltes für die Oher-Posthehiede der Vereinigten Staaten gemäse, slehe maten, werden Postsachen, ge-schrieben mit der Elektrischen Feder und Vervielfalpresse zur Rate von Einem Cent per Unze-nem Bruchtheil derselben, durch die Post be-

variety of work a boy can perform upon it, and the small tost of the apparatus. School children can copy tracings, make maps, take replies of their drawings, cosays, etc. The printing machine is limited to the type feats, this machine only to the skill and imagination of the boy. Endless amusement may be derived from it. Such loys or girls who may be apt at sketching, or at poetical or pro-e composition, can racily and quickly obtain numerous copies of their production for distribution among their fellows and friends. It prints any kind of matter whether written in English, Arabic, or Chinese. Like the tiun, Sewing Marking, etc., the parts of this apparatus are made by the modern methods, and the parts being

INTERCHANGEABLE

can be supplied upon application, thus tendering it untree sary to send the whole of any of the strends machines composing the outfit long distances to be remired.

DIRECTIONS.

Accompanying each apparatus are instructions, in which a more complete description of the appuratus and the best methods of printing is fully set forth, with instructions for making the battery fluid, renewing the lattery, and what to do in case of arrident. 11

(From the Pully Advertises, Newark, N. J.) THE LATEST NEWARK INVENTION.

The latest freak of Newack imputite genine is no less internating and three two two invested investors gains in its season than model. It is known by the title of the "helicopylde Free," and consists of an electric pen, battery and solve pass, the functions of this curious combination is ing to facilitate the dayliration, triplication, and if necessary the multiplication of laters, irade and commercial documents and pictures. The electrical pen is the most inpenions part of the instrument. Imagins a short tube of irractaparing to a point and surmounted by an electric engine scaneshal bigger than a speed of threat. Through the tube run a long to die, the point of which when extended for action protender about the fills the part of an inch beyond the tapering externity of the heavy take or pen holder. The fittle engine on top of the holder considered a double magnet, which site mately attracts and a pole the pole of a small securitie which producing a rapid excitation and couring the point of the modil, the upper and of which is attached to the counttale, to protected from and a tire into the sail of the holder with great esphility. Attached to the empire by a wire throad is the buttery by which the electrical engine is peop il-d.

The Mont's openings is to play the point of the pen upon an collinary short of paper, adjust the lattery, and write minister you wish, the electric pen being avecastly handed as any other. The characters, however, will not be traced in Black, but by dailed lines, the rapid medien of the needle puncturing the pap ras the point of the jet is moved to and four. The practiced short is then weed as a stencil for the manufacture of an in beinte number of explor. A blank sheet is laid beneath it, and a roller entereded with link is proved over the auritor, the final passing through the punctured lines, and making a clear and caset improvious on the blank paper, By this shaple process acress hundred improvious per haur can be obtained, each copy being in the caset Landwitting of the meni pulster.

The use to which this famulion can be put are nuclification. In is taken to the crost-t, to office, or bureau's where multiplication

Burens des Assistani-General-Anwalts der Ober-Postbehörde.

Washington, J. Marz 1873. Meia Herr!

Washington, 5-Mar 1873.

Miller Harri Land Harris Harris Harris Land Harris Harris Land Harris Harri

Hochschnengsvoll T. A. Spence,

Achtbaren F. W. MARSHALL, Erster Assis-tent-General-Pasimeister.

13

Ober Post-Behörde, Anstellungs-Burgau.

Washington, 12. Awast 1876.

Hochschungsvoll James H. Marr.

Au GEO, W. CALDWELL, Columne Nr. 63. Haupt-gebäude der Centenáal-Ausstellung, Philadelphia.

Weitausstellung Philadelphia.

Ein Diplom und eine Medaille wurde der Elek-Ein Lepson und eine steame wurde der Eies-trischen Peder und Vervielfältigungspresse auf der Centenial-Ausstellung in Philadelphia verlieben.

Was die Presse darüber schreibt:

Von dem Daily Advertiser Newark.

Die neueste amerikanische Erfindung.

Die letzte Erscheinung von Newarks erfinderi-Die lettte Erscheinung von Newarks eründerischem Genie ist nicht weniger interessant als sie nütrilich ist. Sie ist bekannt unter dem Thel "Authographische Presse" und besteht aus einer ecktrischen Feder, einer Batterie und einer Waltenpresse. Die Funt-

of documents is desired, to write us of elevator 5 tiers, and in fact in cory can where sold reproduction of copy is wanted, yet not in called all quantity to necessitate the use of the printing gives. It can also be utilized to make for visiting of west one, the comple or other pirture. The inventor of this curious httle intrasect is Mr. T. A. Elleen, well-known as the inventor of the qualitylet Telegraph, by which four messages can be sent over one wire sharp

(From the American Stationer.)

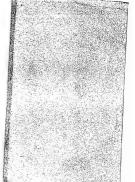
One of the most conscious and inscales; of Editor's extremes possibal intentions is his desire for reduplicating all sorts of written halbs. It is a wanderful little pleas of mechanism and those the consided and type-water, as well as integraphy, completely in the shale. It is simple and practical, and hours a similar relations in the connected promits that the weight marking door to donote. With it one becomes quite had pendent of his printer, and can write subgraphically Letters, Chrodises, Price Lieb, Quitation, Parighhely Catalogue a Contracts, higher ste, etc. Any number of explomay be made-attenued over the rate of six or right per minute. Those A. Ellison, the literate r, has already a world-with reputation as the sheetens of etheric force, and intentor of the Automatic and Quality 4. T. Lyreph Fysicess, Photographs, etc., etc.

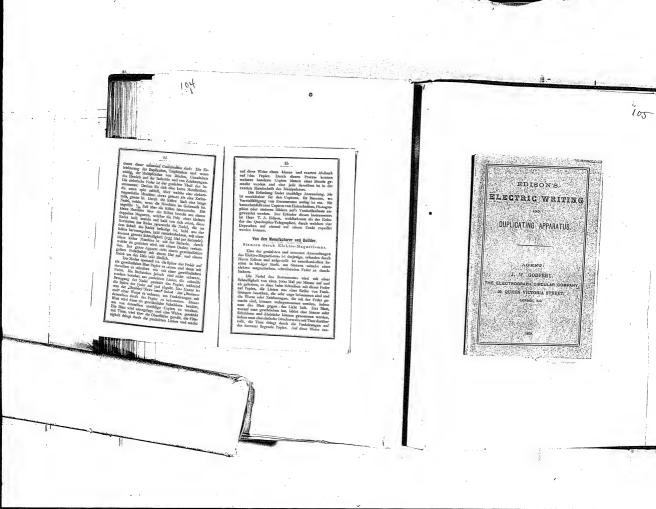
For prices or any other information relating to this apparatus call on or address-

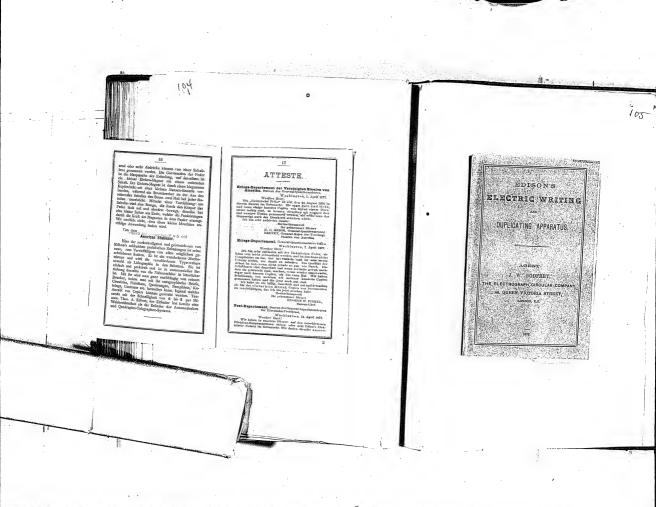
J. W. GODFREY, AGENT,

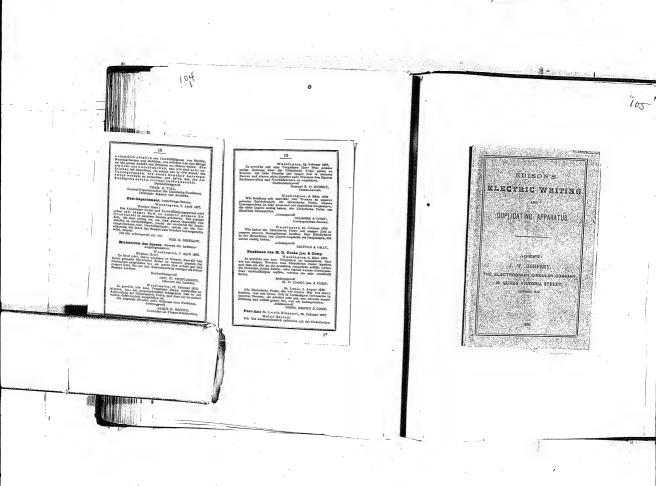
The Electrograph Circular Company.

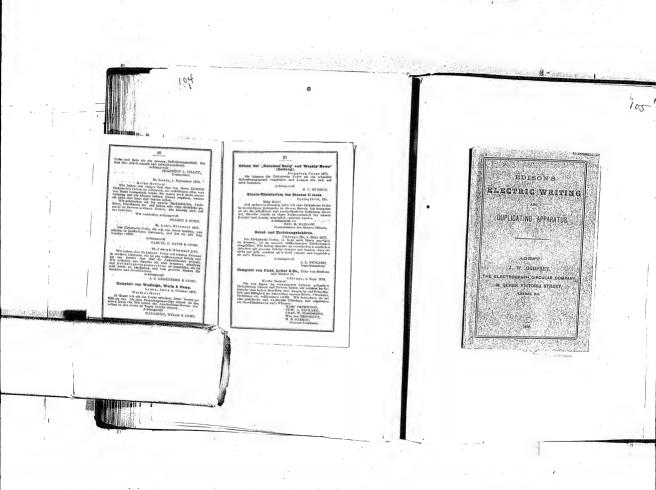
60, QUEEN VICTORIA SE, LONDON, E.C., where a list of the firms and other persons who are now using it in London and in several other towns in England. Scotland, Ireland, and Wales, may be seen, together with

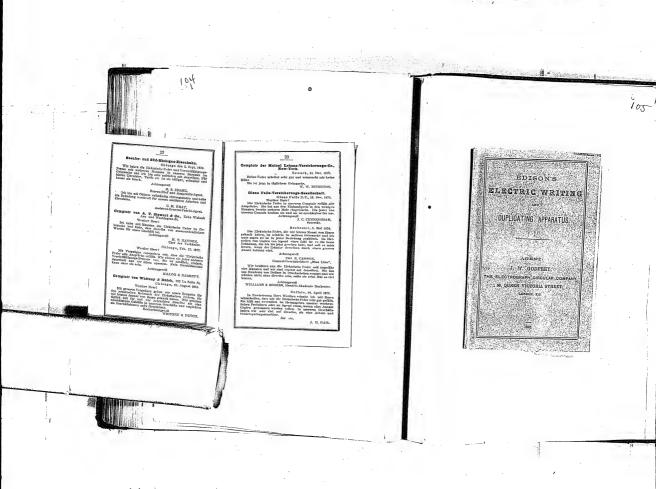


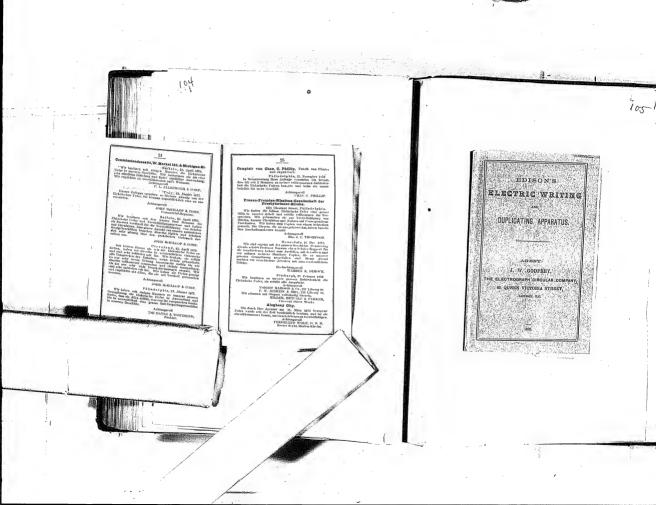


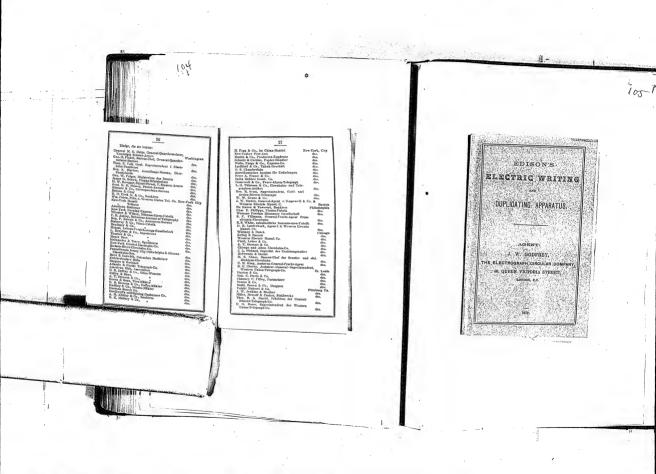


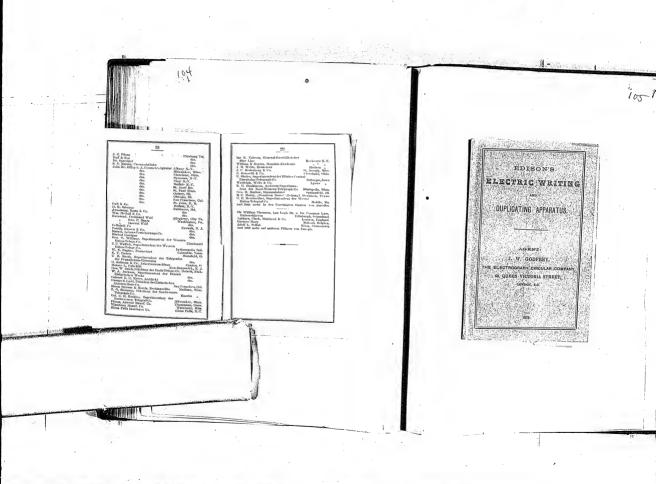




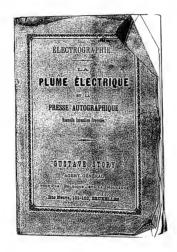








4. MO6



THE

WESTERN REVIEW OF SCIENCE AND INDUSTRY

A MONTHLY RECORD OF PROGRESS IN

SCIENCE, MECHANIC ARTS AND AGRICULTURE

VOL. II.

SEPTEMBER, 1878.

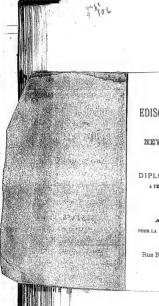
NO. 6.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

27th ANNUAL MEETING AT ST. LOUIS, MO.

After addresses of welcome by the Mayor of St. Louis and Professor W. T. Harris, of the St. Louis Academy of Science, which were responded to by President Marsh, the regular business of the Association was commenced.

The Secretary read the following list of numbers deceased since the date of the last meeting, 1 Alama Sager, of the ulterweiny of Michigan, Ears Read, of Terre Hante, Indians; Joseph Henry, of Washington D. C., who was no reight and member of the Association, and Partellost of the second meeting, held in Cambridge, Mans. in 489, and had always taken an active interest in the Association; C P. Hart, of Cornell University; James Swins, of Fern Dodge, Rome, G. W. Keedy, of Waterville, Mee, died in 1894, an original member of the Association; John V. I., Prayn, of Allany, N. V., an original member of the Association; John V. I., Prayn, of Allany, N. V., an original member of the Association; John V. I., Prayn, of Allany, N. V., an original member of the Association; John V. I.



THE

EDISON ELECTRIC PEN

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NEW-YORK CHICAGO

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Gustave STORY

Rue Neuve, 101-103, Bruxelles.

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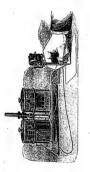
On Weshenshy, August 121, this distinguished body of American scientists met in the chapted of the University of Ea. Louis, vol. 201. Prof. Simon Nescouls, late Proid-line, opened the exercises in 121-121. Prof. Simon Nescouls, late Proid-lean, opened the exercises in 121-121. Prof. Simon Nescouls, the Proid-lean, opened the position with a few appropriate remarks. Professor II. C. Bolton, General Secretary, (to whom and to the Globe-General verse in challed for the material for this report) and to the Globe-General verse are included for the material for this report, places and Professor F. W. Puntum, Permanent Secretary, occupied their proper places and mittee.

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PRIX:

Presse nº 1, format du papier américain, 0.29 × 0.18. fr. 210 = Presse nº 2, format du grand poste, 0.31 × 0.24 . fr. 225 = Presse nº 3, format administratif propatria, 0.37 × 0.24 . fr. 250 =

Ces prix comprennent l'appareil complet avec encre et zines de rechange pour la pile.

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ciation; James Bowron, of South Pittsburg, Tenn.; Wm. Monroe, of Concord, Mass.; John W. Armstrong, D. D., of Pietdonia, N. Y.; Electracer S. Sall, of Amherst, Mass., ided in 1877, two joined the Association at its scen

The following named gentlemen were elected members of the Standing Conmittee: A. G. Weatherby, C. V. Riley, P. W. Clarke, George Engelman, J. W. Osborne and A. H. Worthen.

Messrs. R. H. Ward, Simon Newcomb and H. C. Bolton were elector members of the Committee of Section A—Mathematics, Astronomy, Physic Chemistry and Mineralogy.

Messrs. Morgan, Safford and Latimore were elected members of the Stional Committee of Section B—Geology, Zoology, Botany and Anthropology.

The Entomological Section, which commenced its sessions the day before a literated to several interesting papers by Miss Emily Smith, of Peoria, Ili, a Prof. Riley, of this State, held an afternoon session at the Lindel Hatel, which Dr. J. Linner, President, of Albany, N. Y., discounsed briefly on temethods of collecting. Lephschem.

PIL

Miss Emily Smith spoke on the natural history of Argyrolepia querifoliana is an insect whose larva in 1877 devastated the oak forests of Wisconsin and Renois, leaving the trees bare of leaves as if winter had come.

A very interesting discussion came upon the question of instinct (or resset discussion) by some insects. Miss Smith cited the case of Phylos oppositor, by pursative on bark like, but depoins its rugs (in the ox-ap-rotoning fearls only curious case of instinctive selection. Mr. Wecherly- cited a case of instinct, fault displayed by the larva of Phalyanias corepit, confined in a glass, and the detail Linner spoke of a Praenthesa larva that lashed two twips together in self: that it might not be prevented by the breeze from spinning its cocoon.

There was a little informal discussion as to the visual powers of spiders, zi then the Section adjourned until the next annual meeting.

The evening session was held as before, in the chapel of the University and the first paper read was entitled

THE PHILOSOPHIC METHOD OF THE ADVANCEMENT OF SCIENCE

BY PROF. B. H. THURSTON, HORNER, S. J.

LADER AND GENTLEMES: I have chosen for my subject on this occur
one which is, in my opinion, peculiarly suited for the annual address of a 12

President of the American Association for the advancement of Science—andwhich may appear a novel mote to may among those to whom it is presented,
one which will, I hope, prove none the less interesting for that fact. I prove
to indicate the existence of a "Science of the Advancement of Science," also
ing some of the facts upon which it is based, enunciating some of the larse My
principles of that science, and thus, as well as I may, presenting its philosey.

position necessary to secure a good result. I simply state that with the means I used it was quite impossible for me to get a single bright line in the spectrum of the corona $^{\prime\prime}$

Mr. Batter's next paper wax on "A New Method of Determining he Pixels of a Timing Fork". At the end of one arm of the fork is placed an indirection coll, through which passes a voltaic current, not arrong enough to at all disturb the vibrations of the fork. The current indicated by the vibrations of the fork, operate a telephonic desk, with a stud-plin engaging with a splinder covered with chemical paper. The telluriam polar of the recording in by contact with the ferrouse-granide paper, leaves a black dot for each vibration registered. By control with the property of

The following papers were read by Prof. J. W. Osborne: On the construction of a Sensitive Wind-vane. On Wind-vane Rotations. The Importance of Meteorological Observations in Vertical Section of the Atmosphere, with the suggestion of means for their systematic accomplithment.

The last paper in this section was "Magnetic Determinations in Missouri," by Prof. Francis E. Nipher.

PROCEEDINGS OF SECTION A.

Monday—The proceedings in Section A ware very insurenting. Prof. J. W.Obburre marks an address on "The Imperiance of Mescroploid Diversations in Vertical Sections of the Annosphere, with the Suggestion of Means for their Systematic Accomplishment." Prof. Osborre pointed out the impossibility of taking vertical annospheric observations with the present means, as the buildings of the observation's necessarily interfered with the currents. He did not think at allloom would need the etigency, as it was impossible to secure it in a perfectly stationary position. In the recommended the building by the National Government of a high tower, from two hundred to four hundred feet, on a peaine, where it would be away from distrability influences.

Prof. Barker, on behalf of Mr. Edison, made an

EXLANATION OF THE CARBON BUTTON.

In his opinion, he said, the carbon boston, he investion of Mr. Edison, was one of the most important discoveryie, if not the most important discoverying the said of the property of the prop

lamp, the wick being turned so that smoke formed upon the chimney, which was collected, furnished the best material for the purpose. A quantity of lanublack, exactly as it was taken from the lamp chimney, was exhibited in a bottle by Prof. Barker. The peculiarities of this material, he went on to say, are twofold. (1.) It is the finest variety of lamp-black which can be artificially produced. (2.) Its great conductivity; it is quite as good a conductor as strongy copper. A certain quantity is weighed out carefully and placed in a steel die, and is subjected to a pressure of 1,200 pounds to the square inch. This constitutes the carbon button. He could not bring a specimen with him owing to its extreme francibility. It can be used as a portion of an electrical circuit, as an electrical resistance, first, on account of the conductivity of the lamp-black, and, secondly, with the pressure which is exerted upon it. This electrical resistance varies in accord with sonorous vibrations. In practice it is placed in a small ease into which is dropped a little disk faced with platinum. Contact is made at the top and bottom with wire. It may be adjusted to any resistance within the range of its own limit which may be chosen. The limits may be varied also by the pressure employed in making the carbon button. If the pressure is increased, the sensitiveness of the button is very materially increased. The first practical application of the button was, of course, with the telephone. The problem involved in the telephone is, theoretically, a very simple one. There is an instrument at one end called a "transmitter," whose function it is to translate sound waves into electrical waves. At the further end there is an instrument called a "receiver," whose object is to translate electrical waves back again into sound waves. In the magneto-electrical telephone both functions are served by the same instrument. In all of the telephones now in use the same force which sends the current, or which produces the waves in the current, produces the current itself. A portion of the energy of the voice is used in producing the magneto-electrical current and another portion is used for the purposes of articulation. Prof. Maxwell gives it as his opinion that the telephone of the future will not be the magneto-electrical telephone, and for reasons which seem obvious enough, In the first telephone Prof. Bell used a battery, and used the voice to modify the current. However, in his case the battery current was excessively feeble, and did not produce such good results as the magneto-electrical current did. Now, the problem was to modify the current by the earbon button-to translate, by means of the carbon button, sound wave into electrical waves. The elucidation of this problem is an exceedingly simple one. The strength of the current is exactly proportionate to the pressure exerted on the carbon button. It does not matter whether this pressure is produced with the finger or the tongue. If a strong sound wave strikes it, there is a strong current; if a weak wave there is a weak current. There is an electrical current which copies faithfully every detail of the sound waves and sends them over the wire, and successfully translates the sound waves into electrical waves by means of the carbon button. 'The ordinary or any telephone may be used as a receiver, but Mr. Edison has invented a receiver of his own. An ingenious arrangement was explained, by which accidents

through "crossing" or lightning can be avoided. A "relay" instrument, invented by Mr. Edison, by which a primary current may be translated into a secondary current, was also exhibited. The earbon button can be applied as a barometer to a variety of other purposes.

After receas, Prof. Inster delivered an address on the principle involved in the microphone and the earlton telephone. He contended that the principle of of the two instruments was identically the same, and that Mr. Edition and not Prof. Hughes, of England, had priority of claim of discovery, sithough he did not imply that the latter was indebted to the former for the Idea, but rather that it was a singular instance of contemporary experiments and almost of discovery.

The address was one of the most interesting that has been placed before the Convention, Prof. Barker possessing a peculiar faculty of elucidation.

Prof. Rees, of Washington University, read the following paper on

, THE WORK DONE BY THE FORT WORTH SOLAR ECLIPSE PARTY.

This party was composed of Leonard Waldo, of Cambridge Observatory; R. W. Willson, of Harvard University; W. H. Putsifer, of St. Louis; F. E. Seagrave, of Providence, and the speaker.

Fort Worth had been chosen as the place of observation for several reasons:

1. Weather reports obtained from Colorado and Texas showed the chances for clear weather to be better in Texas.

2. The totality came to Fort Worth fifteen minutes later than it was seen at

2. The totality came to Fort Worth intent influences take than the sake seed at Las Animas, and, therefore, it seemed probable that we would be able to show in our photographs, and, perhaps, the sketches, any great changes in the corona. Mr. Wison left St. Louis July 8 to arrange for the exchange of longitude signals between St. Louis and Fort Worth, and to make the needed arrangements for

the jurty score.

On the night of July 15 an exchange of longitude signals was made, through the kindness of Col. R. W. Clowry. Mr. Waldo, at this end of the line, made use of a transit instrument set up in the observatory of the Washington University. Mr. Wilson used a Stackpole sextant and subsequently a transit loaned by Brown University. Providence.

The rest of the party, except Mr. Pulsifer, reached Fort Worrh on the 18th, houses and houses for the City National Bank, generously placed his ground, houses and house statements of the days before the cellipse were occupied with our for latitude and time. Mr. Wilhon had contrived a very steady sextant and, which entailed Mr. Wildo to make observations on the latitude and time. Mr. Wilhon had contrived a very steady sextant suit, special accuracy. Observers along the path of toollips in Texas were required to cooperate with our party; descriptive articles were written for the paper, and selection of Yref. Wm. Hartnest valuable instructions were printed and sent to each person desiring to act with us.

We readily established observers at Dallas, near Hearne, McKinney, near the

limit of shadow, Allen and Cleburne. Some of these observers were furnished with stop-ratches. A class of some twenty sketchers was organized, under the direction of Mr. Waldo, and were trained in sketching from pictures of the corona—allowing them 2m. 3os. The practical part of the photographic work was put in the hands of Nr. Alford Freeman, of Dallas.

The instrumental equipment of the party was as follows: Mr. Waldo had under his care the photographic apparatus, including two cameras arranged with double refracting prisms, loaned by Dr. Liston, after the suggestion of Prof. E. C. Pickering, for photographing any effect produced by polarization. Mr. Wildo also used a instill telescope for observing connects. Mr. Wildow nuced a beautiful three-include intelleges, landly loaned the party by E. Blery Anderson, of New York of the Professional Confession of the Professional Confession of the Professional Confession of the Professional Confession of the Professional Confession of the Professional Confession of the Professional Confession of the Professional Confession of the Professional Confession of the Profession of the Profes

Although the weather for two days before the eclipse promised badly, yet on the afternoon of the 20th the clouds broke only a few minutes before the first contact, and we had a fine view to nearly the last contact.

In regard to the work done during the celipse, Mr. Waldo reports as follows:

3. He saw the diffraction shadows flitting over the ground at totality.

First contact, 3 h. 11 m. 29 sec.; duration of totality, 2 m. 28.7 sec.;
 ourth contact, 5 h. 10 m. 16 sec.

The photographs show detail, though moved, because the small prominences are drawn out along the plate.

4. The corona was 'very different from any of the coronas drawn during preceding eclipses. The parts of it towards the North and South Poles of the heavens seemed pretty well defined, but the two ends which lay roughly in the ecliptic were very poorly defined, and probably extended much farther than the naked yet saw.

There was not visible at a glance any of the wonderful streamers portrayed during former total eclipses as radiating from the sun, but there were visible variations in the light from different parts of the corona, which gave the impression of unequal densities.

At. Wilso, with the three-inch Secretan, with universal mounting, observed the first contact with the treatil aper pice, magnifying from Universal, and noted the second contact with an inverting eye-pice of 150 diameters, and noted the second contact with an inverting eye-pice of 150 diameters and universal possible of the contact and during touch passe both these eye-pices were used. For third context and during touch power of about thirty diameters was used, the field of view being about 14 diameter. In this eye-pice was a glass plate ruled with concentral circles (by Regers, of

the Harvard observatory) about 6 m. apart, whose circumferences were divided into arcs of 45° each by lines radiating from their common center.

Mr. Willson was also provided with an ordinary Arago polariscope. (Dr. Litton's) and with one of Browning's direct vision spectroscopes to be used as occasion should offer. Observations were made of all the contacts. Prof. Willson, in his paper on the subject, says: Just before the totality I replaced the darker shade upon the telescope by a light reddish glass and caught up the chronometer beat, watching for the contact with my left eye, my right being bandaged. Totality having commenced, I removed the bandage from my right eye and examined the corona. My first glance caused me great surprise. The moon's disk anneared surrounded by a reddish glow (with a slight orange tinge), much brighter towards the moon's limb, of uniform texture in all parts of the circumference, but feding gradually to a well-defined surface about four or five minutes from the moon's limb. Neither chromosphere nor prominences were anywhere visible: this was my first, and I must say, disappointing impression. Just as the timekeeper called 2:15, however, I discovered that I had forgotten to remove my glass shade, which I immediately did, regretting that I had lost fifteen seconds of precious time-perhaps not lost, I think now, for my observation of the nortion visible through the shade may prove to be of use, and seems to discriminate between the colors of different parts of the corona, for as soon as I removed the shade I became aware of other portions of the corona whose light was very nearly as intense as that near the moon's limb, but which were invisible through the shade, while the ring seen with the shade, was not at any time distinctly seen without it. To my view the light of the corona varied somewhat in the different portions; and its outlines were very irregular, but well defined.

Of the protuberances visible, only one was of good size, extending somewhat more than a minute and a half from the sun and having somewhat of a sickle shape, the others were all small, but of a peculiar appearance. Mr. Seagrave reports that the thermometer fell 11° during totality. The first intimation of the moon's approach was given by Mr. Seagrave, who, intently observing with his spectroscope, called out, "Chromosphere gone!" Willson noted the contact six seconds later. Mr. Seagrave says he saw a continuous spectrum with one bright line 1,474, which was measured at the base. At the critical moment Mr. Pulsifer's assistant, completely overcome by excitement, was unable to lend him any help. An untrained man stepping in at this juncture did what he could, Mr. Pulsifer intended to use both of his spectroscopes with his own four-inch telescope, but experiment showed that too much time would be lost in changing, The single prism spectroscope was adapted to the spare three-inch Clark telescope, which had a very shaky mounting and stand. The direct vision spectroscone was fitted to the fourth Clark telescope. For the reason above named Mr. Pulsifer lost the spectroscopic contact. Removing his prism spectroscope and adjusting his solar diagonal eye-piece he observed the sun in partial eclipse; saw few faculte; serrated edge of moon's limb very sharply defined; cusps clean cut; no brushes of light at cusps; granulations and faculæ extended close to moon's

My own observations, Prof. Rees went on to say, during the partial phases nowed the moon's limb very irregular, and, toward the center, affected by a slight undulation. This undulation was not communicated to the cusps, which were very sharply cut. In the extreme points, both before and after totality, dots of light were observed, of the same color as the faculte. During totality the spectrum of the corona, pointing the telescope to four points of the corona

was always continuous, and the Fraunhofer lines c and d were plainly visible. The light of the "wings" of the corona was varied, giving, to my eye, the appearance of parallel rays, and not radials. These wings were in the line of the ecliptic, and the rays were also parallel to the ecliptic. The darkness during totality was not so great as I expected. I was well

able to read fine divisions on my slit screw-head without any extraneous light. Col. Lockett, of Tennessee, made the best sketch the party had, and a copy in oil of his sketch was exhibited by Prof. Rees. Prof. Barker showed the Graphic copy of Draper's photography of the corona, and compared it with the telescopic view by Mr. Willson.

Discussion on the paper was deferred until morning.

The chemical sub-section listened to the reading of a most valuable and interesting paper by Dr. J. Lawrence Smith, of Louisville, on the discovery by him of the oxide of a new element, for which he proposes the name of Mosandrum, a metal allied to the cerium group. This is the only element ever discovered by WORK OF FORT WORTH SOLAR ECLIPSE PARTY.

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an American, and is remarkable as not having been detected, as most of the latter elements were, by means of the spectroscope,

The next paper read before this section was by Prof. Riley and treated of "The means by which silk worm moths issue from their cocoons,"

One of the most interesting articles in the room of this section was a photograph of a new fossil impression in a glacial boulder of metamorphic sandstone, found near Buffalo, N. Y., and exhibited by Mr. A. R. Grote. The impression is remarkable as being the only fossil mark ever found in a glacial boulder, and it is probably referable to some species of Protozoan allied to Oldhamia.

Two other papers were read by substitution: "On a Remnant of the Spectacles in Ania and Letidosteur," by Burt, G. Wilder, "The Development of Amia," by S. A Forbes.

SECTION B

listened to the reading of the following papers:

Embryology of Clepsine (1) Stages preliminary to Cleavage (2) Cleavage, Germ lamellæ, Gastrula, etc., C. O. Whitman.

Extracts from Modern Science bearing on the Law of Repetition, Miss V. Richthofen's Theory of the Loss in the Light of the Deposits of the Mis-

souri, James E. Todd. Are the so-called Chattees of the Cincinnati group Bryozoans? (read by

title.) A. G. Wetherby, Remarks on the Geographical Distribution of the land and fresh water Mol-

lusks of the United States, and their local varieties. Remarks upon the Archaelogy of Vermont, G. H. Perkins.

The Relation of Adhesion to Horizontal Pressure in Mountain Dynamics (read by title), H. F. Walling.

Some Indications of Recent Sensitiveness to Pressure in the Earth's Crust (read by title), H. F. Walling. Remarkable Burial Custom from a Mound in Florida-the cranium utilized

as a cinerary urn, Henry Gilman. Description of a Glazed Earthen Vessel, taken from a tumulus in Florida,

Evidences of Cannibalism in a Nation before the Ainos in Japan, E. S.

The last three papers were read for their authors by the Secretary.

Just before close of the session, Capt. C. E. Dutton commenced the reading of his paper on the "Geological History of the Colorado River and Plateaus." In the evening, at Mercantile Library Hall, Mr. Wm. J. Marshall delivered

his lecture on the Yellowstone National Park, of which it is eminently safe to say that, in point of simple interest and magnificence of illustration, it surpassed any lecture ever given in St. Louis. There was a full house and a very critical audience; but, fastidious as they were, it was only necessary for them to see the

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BEAUX-ARTS — INDUSTRIE — MARINE — ART MILITAIRE — MÉDECINE

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20 AOUT 1878

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Chronique, Brovets d'invention, Bibliographie, Finance électrique,

S'adresser pour tout ce qui concerne la rédaction et l'administration du Journal, 16, rue du Croissant, Paris.

La collection des unciens numéros de l'Électricité élunt prés de s'épuiser, par suite du grand nombre des nouvenux abomits auxquets elle a été offerté en prime, ne pourra plus être liveré aux conditions qui avaient éle primitieneal fixés en fouerr des abonnements d'un an, purtant du 1º initiet 1878.

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Le terse d'explution de l'abouncment des nouveux conscripteurs qui désirenteur recevoir ces six penuiers unanéres a dis, en conséqueire, être fixé on 31 décembre 1878, de sorte que cette prendère série, destinée à formul un volume avec tuble des mutilers à la fin de l'aunée, réviendra, comme le striet suiteurist, au prix de l'abounc-viendra, de sons les striet suiteurist, au prix de l'abounc-

ment annuel (12 francs).
Le prix de cette collection est fixé à 3 francs, prise dans les barcaux du journal, indépendamment de toute souscription d'abonnement.

POLÉMIQUES AU SUJET DU TÉLÉPHONE

La tiliphoto es la pitto na que della plusicura polemitiran pitto un minus rivera se una dereca a sen sujet. Unua river presenta per la compania de la compania della compa

relationer celle dernière.

Al missi des marches par die bisches i riturnation de la missi des missi con l'accident de l'acciden

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A co mémoire, M. du Moncel répondit par une note dans laquelle il montra que, d'après beaucoup d'expériences faites par un cértain nombre de physiciens, entre autres, par MM. Spottiswoode, Blyth, A cette note, M. Navez répond par un nouveen mémoire dans lequell it dit qu'il ne nie pas l'extincano les affectes deceuveris par Page et étudies par M. de suite déceuveris par Page et étudies par M. de la titte, mais qu'il ne croit pas qu'un téléphone aux particules, et maintient ses idées quant aux ribrations par attraction de disabhareament aux ribrations par attraction de disabhareament aux ribrations par attraction de disabhareament.

M. du Moucel, en réponse à ce mémoire, dit que comme la reproduction des sons articulés ne dépend uniquement que des variations d'intensité du courant déterminées par le transmetteur, un téléphone sans diaphragme pourra reproduire la parole du moment on le transmetteur sera dans des conditions convenables et les courants transmis suffisamment intenses; les vibrations qui les reproduisent peuvent d'ailleurs être transversales ou longitudinales. Il insiste pour justifier la théorie de de la Rive, et cite à ce propos une expérience curieuse de M. Guillemin, qui montre que grace aux contractions moléculaires effectuées sous l'influence de l'almantation, une tige de fer recourbée sous l'influence d'un poids peut se redresser au moment de l'aimantation. Il ajoute que quand bien même le diaphragme accomplirait un mouvement très-minime, cela ne prouverait pas contre son hypothèse, attendu qu'on ne peut concevoir un mouvement vibratoire sans déplacoment des surfaces dans les deux sens, A la suite de cette note, nouveau mémoire de

M. Navez, mémoire intéressant à cause des nombreuses expériences qu'il cite et dont voiel les conclusions formulées dans les quatre propositions suivantes;

survente.

1 Lo téléphone Hell, tel qu'il est généralement
construit et employé, no fournit qu'uno press'action
controlle et année des sons, mono très-lucieses,
émis dans le transmetteur lorsquo le réceptour fonne
tionne sans plaque.

2º Dans des conditions exceptionnelles de phonation et d'audition téléphonique, le son de la voix humaine peut être reproduit par un récepteur privé de plaque; mais ectte reproduction est trop faible pour que l'on puisse reconnaître a"il y a ou s'il n'y a pas articulation.

3º L'intensité du son reproduit dépend non-seulement de l'ampittude des vibrations, mais aussi de la surface vibrante.

4° Les vibrations utiles de la plaque sont trans-

versales et produites par des variations dans la force attractive qu'exerce le noyau et les réactions dues à l'élasticité de la planue.

Puls viennent des discussions do détails que l'on pourra apprécier par la nouvelle réponse de M. du Moncel, dont nous avons la primeur, et que nous reproduisons ectte fois in extense, car olle ronferme des considérations importantes.

H. D'A.

A Monsieur le Président de l'Académie royale de Belgique,

Monsfeur le président,

Jo desirais terminer la discussion ouverie par M. Naver par la dermière lettre que j'al envoyée à l'Académie de liejquee. Mais sur trais de pinsieme. L'Académie de liejquee. Mais sur trais de pinsieme de mes annies et la figure dans les mêmes idées que moi sur la trais de displonce, le meisidées que moi sur la trais d'applique de continuer cette discussion, hien qu'à vrai direction des couvertes moturels semblent montrer que la triner du téléphone ext envore biene loin d'être établie d'une manière autification.

Il est tonjours résulté de cette discussion, et c'est là le point important, que M. Navez admet maintenant qu'un téléphone sans diaphragme peut émettre des sons et, dans des conditions exceptionnelles de phonation et d'audition, peut reproduire le son de bi role humaine saus qu'on puisse toutefois reconnaltre s'il y a ou non articulation. Il nous suffirait, d'après cela, et en nous rapportant à notre théorie, de dire qu'en admettant un renforcement de l'action électrique on magnétique, ces sons inintelligibles pourraient devenir la reproduction de la parole. Or, ce renforcement se frouve précisément effectué par le diaphragme qui joue le rôle d'armature. Mais il s'agit de préciser les faits, et il convient d'examiner: 1º Si l'attraction joue un rôle appréciable dans les effets produits et est capable de déterminer les vibrations transversales, nécessuires, d'après M. Navez, à l'articulation des sons. 2º Si cette articulation des sons dépend du récepteur ou du transmetteur. 3º Si les effets constatés par M. Navez ne peuvent pas s'expliquer d'une manière toute différente.

Mais avant d'entamer cette discussion qui ne peut se rapporter qu'aux téléphones électro-magnétiques, nous devons dire quelques mots d'une découverte nouvelle et inattendue qui a ouvert à la question un champ bien autrement vaste, et a montré des horizons nouveaux qui pourront peutètre un jour conduire à la création d'une nouvelle branche de la science. Le téléphone, en effet, peut reproduire la parole sans aucan organe circiro-hatique : un simple microphone avec deux morceaux de charbon en contact et une membrane adaptée à l'un de ces charbons, voilà tout ce qu'il faut pour cela. Cette fois, il ne s'agit plus de diaphragmes vibrants par attraction, ni de contractions et dilatations magnétiques moléculaires , et nous ne voyons plus comment M. Navez pourra trouver dans ce phénomène la cause de ces vibrations transversales qu'il regarde comme indispensables pour l'articulation de la parole. Je puis pourtant certifler à M. Navez que dans les expériences qui ont été faites et répétées devant nous, par M. Hughes, i et en prisence de plasieurs personnes, entre autres de MM. Chardin, Depis, de Méritens, qui ent feus très-lienden parte in microphone récepteur, que dans l'ampérieures que jel faites moi-nième avec M² ed Monta de l'architect feus les phrases que je dissist admis de prévent partieur, la transnission des vibrations ne emplone partieur, la transnission des vibrations ne montant de faite mécaniquement, car, quant le circuit autre coupé, ou la pilor retrire du circuit, aucus son rélati entendu(t).

Il faut done décidément que M. Navez compte de se vibrations modéculaires, on des vibrations du moire tout afte nouve par de cette des des vibrations de la fin noverse et qui devre être éta-dié, et c'est parce que nous nous notarsons. Si prope à vouloir rester dans les limites de tibreires pare à vouloir rester dans les limites de tibreires incomplètes, que nous avons laises aux Américas du ne sen inquiètent guêre, la policier des grandes découvertes qui nous étonnent depuis quêques découvertes qui nous étonnent depuis quêques mois.

Revenons maintenant aux téléphones électro-magnétiques et examinons d'abord si l'attraction joue dans les vibrations du diaphragme le rôle que M. Navez lui suppose.

Les expériences que cite M. Navez ne lui font préjuger les effets d'attraction quo par les vibrations qui doivent, suivant ini, on résulter, et qui se trouvent éteintes quand on les arrête par une sorte d'étouffoir.

tel, jo suit d'absent obligé de rappeler à M. Navez que par le met térotione métradure, jo n'al jamals entendu parter d'une voltement des parties de mécaniques. Une vibration au mora part résulter de cautractions et de dilatations peut résulter de cautractions et de dilatations que qua qua de quand cos actions peuvent se dévendopre tilierant, et et pour moi, comme pour N. Hughes, les vibrations longitudinales dout j'il parté dévent étre accompater de parties de la plus souvent d'un mouvement vibratoire parties de pass souvent d'un mouvement vibratoire pass surices.

Voici maintenant une expérience de M. Hughes qui montre, ce me semble bien nettement, que l'attraction n'est pour rien dans les vibrations dont nous venons de parler.

Prenons deux harreaux almantés, identiques en longueur, en diamètre et en force, et disposons-les de manière à constituer le système électro-magnétique d'un téléphone, en ayant soin de les bien isoler magnétiquement l'un de l'autre et en les recouyrant tous les deux à leur extrémité active avec une même bobine. Si on dispose ces deux aimants de manière à présenter l'un à côté de l'autre des pôles de même nom, on aura un téléphone dans les conditions ordinaires, et dans lequel tontes les actions seront conspirantes dans un même seus; mais si on renverse la position réciproque des deux aimants, c'est-à-dire si on place un pôle sud à côté d'un pôle nord, les actions seront en discordance, et es effets d'attraction magnétique résultant des courants transmis seront, sinon neutralisés l'un

(1) Grest on effect dos mêmes genure qui est produit, par les houghes électriques de M. Jalabochked quand elles ésuriteut des soust; car ces sous sous préciséraunt à l'unirean de ceux déterminés par les maisses de la commandation de soust; car ces sous sous préciséraunt à l'unirean de ceux de la commandation et de la commandation et de la commandation et de la commandation et de la commandation produiter au series de administration un moment à les convariat chanques de sensi de la legalezation un moment à les convariat chanques de sensi de la festion de la commandation de l

par l'autre, du moins considérablement amoindris (i).

Or, c'est avec cette disposition que lo téléphoni donne les mellieurs effets, cette expérience de répétée de direction amaières par M. ingées, et M. Addinlarvait également faite de son côte, et indépendenment d'M. ingées, et des évident que si Penetien attractif le ingées, et des évident que si Penetien attractif le ingées, et des évident que si Penetien attractif le ingées, et des évident que si Penetien attractif le ingées et des évident que si Penetien attractif le ingées et des évident que si Penetien attractif le ingées et de l'entre que la liverse se serait produit.

Ditta autre olde, si on constitute le displaraçune d'un tédeplone, rece une masse de fer un peu d'un tédeplone, la pour serve ille il sai voir, transmite plus d'finitieres qui les principales plus territories de les déstinantations qu'inver que les simunations et les déstinantations de l'un territorie de l'autre de l'inverte magnétique qui est des plus territories de l'Inverte magnétique qui est de l'inverte magnétique qu'en de l'inverte de l'inverte magnétique qu'en de l'inverte de l'inverte magnétique qu'en de l'inverte de l'inver

been provided by the provided special provided p

Voici encore d'autres expériences de M. Hughes et de M. Paul loy qui sont aussi probantes : 1 s Si on preud na deriramat à doux branches et qu'en applique encue primant à doux branches et qu'en applique encue plus qu'en de fer en ayant soin de la sée pole suite de papier, et étécut-nianait, étant tixé en suite de papier, et étécut-nianait, étant tixé en suite de papier, et describer-nianait, étant tixé en produire les mois prouoncés dans un misco-phono pasieur, miss en rapport avez lui, éton pourra

les entendro en appliquant l'oreille contre la planche; 2º Si on oppose l'un à l'autre par leurs pôles de noms contraires deux électro-almants, en ayant soin do séparer ces pôles par des morceaux de papier, on obitendra clairement la reproduction de la parole, sans qu'il y ait besoin d'armature;

(1) I Higher pelved sprils root annula dans or eat, and of the control of the con

(4) Co même avantage se retrouve dans les électro-motenra de MM. Canacho et Chataux, dans lesquels les annalures sont composées de lameles de fer juxtaposées. (Voir mon Export des applications de l'électrésité, l. V. p. 347.)

Nous allons examiner maintenant si l'articulation des sons dépend du récepteur et du transmetteur. Les expériences que M. Hughes a faites avec le microphone peuvent donner quelques renselguements intéressants sur cette question

D'après ces expériences, il est démontré que les sons articules sont beaucoup mieux reproduits avec des charbons de sanin métallisés qu'avec des charbons de cornue, tandis qu'au contraire les sons simples sont mieux transmis avec ces derniers. Si l'on examine l'intensité des courants transmis dans les deux cas, on reconnaît pourtant que le courant est beaucoup plus faible avec les charbons de bois qu'avec les charbons de cornue; mais c'est précisément à cause de cette plus grande résistance des charbons de bois que les différences dans les intensités du courant résultant des différences de pression sont plus accentuées, et que les nuances les plus fines des sons articulés sont mieux accusées dans le téléphone. Plus ces différences seront accentuées au transmetteur, plus le système électromagnétique du récepteur sera impressionnable aux réactions électriques, plus la parole sera distincte, et co ne sera pas dans une question de vibrations transversales ou longitudinales qu'il faudra rechercher la cause déterminante.

J'en arrive maintenant à la question de savoir si les effets constatés par M. Navez ne penvent pas être expliqués autrement qu'il ne l'a fait.

Je vois surtout qu'il regarde comme preuves à l'encontre de mes idées, qu'en employant des masses de fer un peu volumineuses, il diminue la sensibilité du téléphone ; il en parie en plusieurs endroits de sa note, et nous avons vu précédemment que ces effets tennient à l'inertie magnétique du fer qui est d'autant plus considérable que la masse est plus grande. D'un autre côté, il montre qu'avec une masse extrêmement faible il obtient la reproduction de la parole, parce que, suivant lui, cette masse peut vibrer plus facilement; moi, je crois que c'est simplement parce qu'elle s'aimante et se désaimante plus promptement; il ne faut pas d'ailleurs perdre de vue qu'une surexcitation magnétique peut résulter de l'action d'un fil de fer fin ; j'en al fait souvent l'expérience.

experience. L'augmentation du son, reproduit suivant l'étendue de la surface vibrante, n'est pas en contradiction avec ma théorie, puisque je ne comprends pas une vibration moléculaire sans déplacement des surfaces extérieures du corps qui y est soumis.

Pour terminer, je vals paster en revue l'analyse que fait M. Navez des travaux des auteurs dont l'avais parié et dans lesquels il croit trouver des arguments plutôt en faveur de sa théorie que de la mienne. Je commenceral par les expériences de

M. Warwick, M. Navez affirme que cet auteur n'anrait fait que dire qu'il aurait entende dans un télénhone Bell sans plaque, mais que cela ne veut pas dire au'il ait compris. Or, voici ce que M. Warwick dit dang sa notar

a Alors j'al essayé sans qu'il y cût rien d'interposé, et l'ai placé mon oreille tout contre l'aimant et la hobine, et ce qui est vraiment très-curioux, sans aucune plaque vibrante, j'ai pu entendre faiblement et, en écontant attentivement, j'ai pu comprendre tout ce qu'on disait. La chose a été répétée plusieurs fois ; la transmission mécanique du son était impossible, etc .. (i) .

En second lieu, le passage de M. Preece auquel j'ai fait allusion est emprunté à une brochure de ce savant. intitulée : Sur quelques points physiques en rapport avec le téléphone. Après avoir cité une lettre de M. Edison du 25 nov. 1877 dans laquelle celui-ci dit avoir fait des expériences avec des téléphones ayant un diaphragme de cuivre au lieu d'un diaphragme de fer, M. Preece ajoute : « J'ai répété ces expériences, mais l'effet fut si faible qu'il était à peine distinct, et quoique intéressant au point de rue scientifique, il ne m'a pas paru pratique. »

Or, la pratique n'a rien à faire avec la question qui nous occupe, et l'action des diaphragmes en cuivre, au point de vue de la réception des sons, ne peut pas être plus expliquée avec la théorie de M. Navez que celle des téléphones sans diaphragme.

Je n'ai pas prétendu que M. Blyth avait fait des expériences avec des téléphones sans diaphragme ; mais ce qu'il dit des effets qu'il a obtenus est inexplicable avec la théorie de M. Navez.

Quant à l'expérience de M. Guillemin que M. Navez tourne en faveur de son opinion, j'avoue ne pas saisir la finesse de son raisonnement, car M. de la Rive la cite précisément, comme moi, en faveur de notre opinion commune. Nous y voyons uncaction de contraction ou d'arrangement magnétique qui détermine un effet matériel, effet que j'admets parfaitement et que je regarde comme une conséquence de l'action moléculaire.

Enfin M. Navez se méprend complétement, et Jignore qui a pu l'induire en erreur à cet égard dans la rédaction de ma dernière lettre, en disant que je regarde les sons produits dans les fils télégraphiques comme le résultat du passage d'un courant Je n'al jamais dit une pareille énormité, et j'ai consacré un paragraphe entier dans mon Exposé de applications de l'électricité, tome II, p. 430, et dans mon Truité de tellgraphie électrique, p. 213, pour démontrer le contraire. Je n'ai parle de ces effets dans ma lettre que pour indiquer ce que j'entendais par les mots vibrations longitudinales.

En résumé, tout le mémoire de M. Navez, d'allleurs fort bien fait, no prouve rien contre les idées théoriques que j'ai émises, et je crois que devanties phénomènes qu'on découvre tous les jours, il seraliimprudent de soutenir que la véritable théorie de ces effets est trouvée. Nous avons affaire à un élèment nouveau qui n'est pas encore suffisamment étudié, et le mieux est de dire que l'explication du teléphone est encore incertaine

Je vous prie, monsieur le président, d'agréer l'assurance de mes sentiments les plus distingués.

TH. DU MONGEL.

aux et imagina un mode d'attaches qui défie tous

La bolte forme un cube de 0 m. 75 c. de long sur 0 m. 50 c. do haut et 0 m. 50 c. de large ; dans cet snace sont fixés : 1º L'appareil qui mesure 0 m. 40 c. à sa base sur

m. 45 c. de hauteur, pèse 35 kilog. 2º Le relais qui mesure 0 m. 10 c. sur 0 m. 15 c. de

base et 0 m. 13 de hauteur, son poids est de 31 kil (L'apparell se passe de son relais jusqu'aux distances de 40 et 50 kilomètres.)

- 3. Une sonnerie: 4º Un galvanomètre:
- 5. Un paratonnerre;
- 6º Un petit manipulateur Morse;

7º Un portefeuille contenant les feuilles à dé-8º Les petits accessoires, tels que plume, règie, ci-

seaux, enerier, etc., etc. 9. Les communications, qui sont installées dans ies postes municipaux,

L'appareil fut ensuite mis sur un camion et promené pendant huit jours dans toutes les rues de l'arissans cesser de se comporter aussi bien que celui qui n'était pas sorti de la chambre d'études,

Terminons en ajoutant que l'expérience a en lieu vec une pile Trouvé, composée de deux cuvettes formant un cube qui n'a que 0 m. 40 c. de hauteur et 30×40 cent, de base.

HALLEZ D'ARROS

CHRONIOUE

L'Électricité à l'Association britannique

Nous avons entre les mains le programme des séauces de l'Association britannique pour le progrès des sciences, qui se sont ouvertes le 11 août à Dublin. Nous y voyons, que de grandes expériences électriques y seront exécutées,

On nous este notamment la production de colossales étincelles d'induction, à l'aide d'un gigantesque apparell de lluhmkorfl, appartenant à M. Horatio Yeates, et d'un condensateur hors ligne, prêté par le docteur Spottiswood. Nous rendrons compte de cette partie du congrès. Puisse l'exemple donné par nos voisins d'outre-Mauche obliger, à la dernière houro, los Barnums officiels du Champ-de-Mars et du Trocadéro à faire appel au concours de l'électricité!

A ce propos, nous demanderons comment il se fait que dans notre pays d'égalité, les intéressantes expériences de téléphonie comparative aient été exécutées exclusivement au parillon de la presse en présence d'un public privilégié.

Nous avouons être hors d'état de comprendre par aulto de quello combinaison le public payant so trouve exclu des trop rares expériences qui pourraient rompre la monotonie de l'Exposition.

Monopolisation du téléphone

La Compagnie qui a acquis de M. Bell le droit d'exploiter son téléphone en Angleterre, a adressé une pétition à la Chambre des Communes pour la prier de ne pas inscrire, dans le nouveau bill sur les

télégraphes, le téléphone, parmi les objets dont le

gouvernement se réserve l'usage exclusif. On pense que, maigré le bien fondé de cette requête, elle sem rejetée, et que le monopole s'étendra à cette admirable invention, avant même que l'exploitation sit pu en être tentée par l'industrie

Disgrace du phonographe à l'Exposition universelle

Nous sommes menaces d'un grand scandale qui justificrait d'un scui coup tout le mai qu'en a pu dire de l'Exposition. La ciasse des instruments de précision a refusé de s'occuper du phonographo et tenté d'obliger la classe de la télégraphie de se prononcer sur son mérite. C'est ce que cette dernière ne peut faire, évidemment,

Il en résulte que M. Edison est menacé de n'avoir point de récompense, et que l'admirable invention qui a excité tant d'enthousiasme, ne vaudra pas à son auteur une scule des distinctions dont on sera si prodigue pour des personnages dont le seul mérite est le plus souvent d'avoir mis en mouvement de gros capitaux, et dont les plus filustres n'out généralement d'autre gloire que d'avoir su tirer parti du mérite d'inventeurs morts de faim. Cet audacieux déni de justice excitera le mépris

de tous les honnètes gens.

Réforme des feuilles de télégrammes

ration des télégraphes français paraît e les Auglais ont, depuis dix ans, donné à leurs feuilles télégraphiques une forme qui permet de compter immédiatement et sans aucune perte de temps le nombre des mots composant les dépêches privées.

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	Neur	soumethous	à	-	attention	ı
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ALC: UNKNOWN	postes	et	töléyrapkes	Pranyois	la	ı
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ı	que	nons	lui	arlressons	par	
	la	toie	de		Electricité.	

Comme ou le voit par le modèle ci-dessus, le public n'écrit qu'un seul mot dans chaque case, da sorte que l'énumération est instantanée. On est ainsi dispensé de faire les longues poses qui rendent si désagréables les offices français.

L'invention du téléphone réclamée par les Chinois

L'Électricien nous rapporte que dans un article récent do la finzelle de Prkin, écrit par un certain Chue Hoa, l'invention du téléphone est réclamée en fa-

not has we well to



Nous avons fait représenter de grandeur naturelle et à plat la pièce principale.

Elle se compose d'une pelite auge en ébonite dont les deux fonds, supérieur et inférieur, sont en fer doux : elle est placée au-dessus d'un électro-almant et remplie de poussière de charbon.

Nous avons représenté un opérateur au moment où il ferme cette auge, après avoir placé dans l'intérieur la malière pulyérulente.

Le principe d'action est analogue à celui dont M. Edison a tiré à tant de reprises un parti si brit-

Quand on fait passer un courant dans l'électroalmant, le fond supériour, qui est mobble, se treuve almant, le fond supériour, qui est mobble, se treuve attiré, neguetiquement, par le fond inférieur qui est fixe superpassion de la conductelibilité est augment de Il en résult de la conductelibilité est augment de l'un courant local, qu'un cour

C'est celle différence de pression qui fait parler un marteau local. Il suffit du dessin que nous donnons pour que chacun puisse se rendre compte de la marche de cet

étoniant inécanisme, dont on peut dire que la simplicité confoud l'imagination. Comme on le voit, il y a une métinode curieuse dans le développement du génie de M. Bélison, qui s'est achirmé à fairre du charbon, substance dédatguée jusqu'aion en télégraphie, des résultats un substance inattaquais en l'introduite en écetrifeit par la pile Bussen, doit introduite en écetrifeit par la pile Bussen, doit

avoir up pareil avenir?

. . .

Terre Terre

VOLTAMÈTRE DÉTONANT DE M. BERTIN

Cette expérience peu comme ent très-latéressants en ce qu'elle permet de miètre de Védence certains phénomèmes de paudinne des lames d'un étertojète qui principate de la lames d'un étertojète qui principate de la lames d'un étertojète de la lames de la l

mités et fixé dans le bouchon d'une éprouveite à pied E. Deux bornes +, — servent d'uttache aux file d'une pile un pou énergique (50 éléments de Bun-

heso).

La cloudes G étant rempiles d'exas attachés et ditableme de son volume, on fait sept ne courant e contrait e cont

veur d'un philosophe du nom de Kemp Pos Wing, qui viruit en l'an 1976 de l'ère chrètienne. Cuolque qui viruit en l'an 1976 de l'ère chrètienne. Cuolque Pilédricien sous le nom de Tiemsistein, nons nous permettenne d'entert un purple se vieur purple proposition de l'entertienne

cellent confrère. Quand nous voyous la manière délégante et sûre, dont quelques mandarius françiis, préposés à la direction des télégraphes, ont écondi l'internation su téléghone, nous ne pourvous croire qu'elle se soit propagée en Chine, oi les mandarins pullulent, et où il il vy apas de télégraphes. Il pourrait cependant se safter qu'il ne Sayti que du téléghone à ficelle Il Dans co cas, le nombre des mandarius importerait Dans co cas, le nombre des mandarius importerait

Un opéra entendu à distance

Lo Lemnal (télégraphépes de Borne, qui est, comme on le sait, dirigé par M. Curchou, un des électriclers les plus distingués d'Europe, nous rapporte un fait authentique de la transmission à distance d'un opéra entier, grâce à la combinaison du téléphone et du microphone. Cinq personnes on su que estendre et suivre, saus en perfer une note, l'opéra de Bon Parquels, qu'ou jouait au thétire de Bellitzon.

Le microphone avait dét placé sur la scène, et les téléphones étalent situés à un endroit où il était impossible d'entendre les bruits du théatre; les áuditeurs ayant placé dans le circuit une résistance de dix kilomètres, l'intensité des sons n'en a point été sessiblement diminuée.

Le magnétismo chez les savants arabes du moyen age

«All pries », dis l'auteurs » une pierre d'ultera d'ultera qui avait la puissance d'univer 10 debenim de for, et après avoir fait l'expérience, je laissal est objet en pies tant, je l'am appreciation un autre morceau de for, que mon alment récisa une autre morceau de for, que mon alment récisa une autre morceau de for, que mon alment récisa une autre morceau de força que mon apprecia la balance, je m'assarra qu'il me y divine anna propie la labateure, je m'assarra qu'il me y divine de l'ambient, a lor de de distincte, » Avec primer de la labateure de de l'alment varie de de distincte, » Avec que me apparité que bien des pièces de de l'ambient varie de l'ambient de de l'ambient varie de l'ambient de de l'ambient de l'ambient de l'ambient de l'ambient de l'ambient de de l'ambient de l'ambi

Influence de l'électricité sur la végétation

M. Grandeau, professeur à l'école forestibre de Nancy, a fait de très-terriseuse observations au l'intituence que l'électriellé atmosphérique exerci le développement d'une plante renfermée dans l'hai développement d'une plante renfermée dans l'hai développement d'une plante renfermée dans l'actiour d'une cage de Faraday, et, par conséquent, entièrement soustraite à l'influence de l'électrielle, ettièrement soustraite à l'influence de l'électrielle atmosphérique, est entravée dans une proportion

La masse des matières inertes salines qui entrent dans sa constitution est augmentée; au contraire, la production des substances protéfiques que le but de la végétation semble être d'élaborer, en vue de l'alimentation des animaux, est diminuée.

Une question qui se pore immediatement, serait de continuer les expériences que menerata un contrario l'influence de l'electricité agrecation de l'electricité par les fout ex, il serait du plus hait intérêt de procession de l'electricité agrecation de l'electricité agrecation de l'electricité agrecation de l'electricité agrecation de l'electricité de l'electric

Récompense au docteur Joule

Tous les électricleus apprendront avec la plus vive satisfaction que le docteur Jouise, de Manches ter, qui a fitt un si brillant usage de l'électricité pour arriver à la détermination de l'équivalent mécanique de la chaleur, vient de recevoir une pension de 5.00 fr. par an sur la liste civile de S. M. la reine d'Augieterre.

Nous lisons dans les journaux anglais, et nolam ment dans Neture, qu'une très-grande et l'rés-impo- tante découverte relative à l'électricité vient détrigate; act relative a l'électricité vient détrigate; cette runneur mêus est confirmée pars être correspondance privée. Espérons qu'il n'y aux pas cette fois de fumée sans feu, et des quo nous serous en mesure, nous entretiendrons nos lecteux de cette affaire mystérieus.

BREVETS D'INVENTION

122,751; 21 (évrier 1878. - J. Battot. - Appareil divisor de la lumière électrique

Etant données deux holtes de verrs ou de mètal, on les remplit de limitile de cuirre et l'on introduit dans le sez de la longueur les contenteurs + et --, qui communiquet avec la machine électrique; le courant se répand dans les holtes où chieres en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de cuirre en trouve l'écule de

On introduit alors d'autres conducteurs duits les boltes ob fon oblient quatre courants; si ces quatre conducteurs irrversent à leur tour les boltes, la limaille recernait le courant re trouvera également électrisée, et les fin que l'on plougers dans ces boltes deviendors de nouveaux conducteur du courant pour former 25 foyers actifs et séparés de lumitée décirique, (21)

131.825; 25 février 1878. — A. Bannox. — Perfectionnements dans la production de la lumière et de la chaleur électri-

La lumière est produite à l'aide d'électrodes parallèles, opposés ou inclinés sous un certain angle, traversés par un

un phénomène d'une autre nature et non moins curieux. L'eau, qui a d'abord baissé rapidement jusqu'à quelques millimètres au-dessous des lames de platine, s'arrête tout à coup, malgré le dégagement des gaz que les fils séparent par le bas. Avec de l'eau de puits, la décomposition de l'eau est plus lente, et la détonation ne se produit plus même avec 50 éléments Bunsen. Mais un autre phénomène curicux s'observe encore. L'eau baisse jusqu'à la base des lames, et à partir de ce moment, le niveau ne fait plus qu'osciller entre la base et le sommet des lames. L'eau est décomposée par le bas et recomposée par le haut. Un courant plus faible que celui de 30 éléments décompose tout. Ces phénomènes sont bien dus à la polarisation des électrodes et non à la force catalytique du platine, car on les obtient avec des électrodes construits avec différents mé-

aLA FUSION DES POSTES ET DES TÉLÉGRAPHES

Le titre de notre revue suffit à lui seul pour etitlester de notre sollicitude pour tout ce qui conerterne les intérèts et la situation des employés des ntélégraphes : c'est à nous qu'appartient la mission d'le servir d'organe aux légitimes réclamations de meenx que souvent des considérations hiérarchiques Lageduisent au silence. Qu'ils nous signalent donc les rrégularités de service, les injustices, les abus ou des passe-droits qu'ils nous trouveront toujours dis-disosés à signaler aux autorités compétentes, ou à grombattre par les armes puissantes de la réprobaon publique.

tai L'Electricité n'avait pas beso'n de faire cette pro-Saphssion de foi pour recevoir de bien des côtés diffé-dagents l'écho des inquiétudes qu'a provoquées dans grie personnel télégraphique la fusion de cet impor-sirie personnel télégraphique la fusion des cet impor-grant service avec l'administration des postes. Sans tténuer en aucune façon la valeur et le mérite de IM. les agents et fonctionnaires des postes, il nous

est permis de penser qu'ils ne peuvent avoir la préest permis de permet de la supériorité de la carrière té- le globe terrestre renferme dans ses profondeurs un légraphique qui exige une pratique et des connais- noyau en fér. tegraphique qui vage superflues pour le maniement et Cotte idée doit être rapprochée de celle que la classification des lettres et des journaux.

L'ELECTRICITE LECTRICITÉ

> fonctionnaires des deux administrations fusionnées (Comptes-rendus.) fonctionnaires des deux de le présentait des avanta- Ce savant, faisant un pas de plus que ses deux ges en faveur du servico des postes : cetto anomalie émules, considère le soleil comme étant le siège de ges en latent du comme control de la traitement courants électriques fermés, ou bien comme renno resunter-vene per de transmissions télégraphiques fermant dans son in érieur des aimants permanents, varie de 3.000 à 3.500 francs, sans dépasser co der et il cherche à montrer quellos sont les consénier chiffre, tandis que les appointements des rece- quences pratiques de cette hypothèse, ner chiure, tanua que co apparent par la finite dont il ne donne pas les éléments, mais

> experious que, margre la majorite permet data es l'ad- solaire par celle d'un courant unique parcourant in ministration centrale des télégraphes sauront dé-circonférence d'un grand cercle du soleil, dont la fendre la primauté qui leur revient dans cette double situation héliographique pourrait être dédnite de la hiérarchie; nous n'aurous pas à déplorer que, suivant des errements qui trop souvent prédominent restre et de la distribution du magnétisme solaire, dans nos grandes administrations, les chofs de file Si la terre était rendue fixe dans l'espace, l'action se trouvant classés avantageusement, abandonnent de ce circuit se réduirait à donner aux corps mala défense des employés subalternes.

> tions importantes toutes les informations et lous taine direction invariable. Il n'en sera plus évidemles éléments de discussion que voudralent bien nous ment de même si la terre et le soleil sont animés adresser des collaborateurs dont nous respecterons de leurs mouvements réels, les trois grands mou-

MÉTÉO ROLOGIE ÉLECTRIQUE

En acceptant la tâche d'aller porter dans une ré-tera. gion lointaine les méthodes scientifiques de l'Eu-. Les parties atmosphériques les plus voisines des rope, MM. W. Brollyrton et John Perry, professeurs astres s'électriseront positivement et les conches au collège impérial à Tokio, n'ont pas le moins du fintérieures s'électriseront négativement. monde renoncé au devoir de prendre une part ac- On se trouvera dans le cas auquel les physiciens live au déveloprement des théories électriques. Ils de Tokio appliquent leurs savants calculs. ont successivement public, dans lo Journal philoso Toutes les conséquences expérimentalement étanous appellerons successivement l'attention de nos gnétisme solaire l'existence de la variation diurne lecteurs

Dans un important mémoire qui a été inséré dans éde la variation annuelle, etc. le numéro de mars 1878, les deux laborieux associés de Ces hypothèses ainsi que les communications font remarquer que l'intensité des courants thermo- antérieures de M. Quet ont glissé inaperçues comme électriques, incontestablement produits par l'action si l'auteur était un novateur téméraire entrant dans du soleit sur les parties liquides et solides qui une voie erronée. Les membres de l'Académie des constituent l'enveloppe de la terre, n'est pas sufil- sciences, qui ont la mémoire fort courie, ont onblié sante pour expliquer soit les courants spontanés, que le grand homme qui a passé sa vie pour établir soit la production de l'électricité atmosphérique, les bases de cette dectrine, fut pendant quarante aus soit aussi le magnétisme terrestre.

lis prétendent que pour comprendre cette forma- de la Société de physique. tion, il faut considérer les différents membres du li faut sjouter cependant que pendant ces qua-systèmic solaire comme étant autant de condress-rante. Since l'illustre Hausteen n'adressa pas un seul densateurs et leurs capacités électriques doivent vasorte que les courants produits par des changements de position ou par la rotation neuvent, dans certains cas, atteindre une énergie considérable.

pés à déterminer, par l'analyse mathématique, quelle doit êtro la force des courants produits dans l'intérieur de la terre par le soul fait de sa retation

en face du soleil, mais en supposant de plus que

L'ÉLECTRICITE

M. Quet a émise par une singulière coïncidence à L'assimilation des positions occupées par les peu près en même temps. [N° du 11 mars 1878 des

dont la légitimité peut être établie par des raison-Espérons que, malgré la majorité postale dans les nements a priori, lui permet de remplacer l'action

gnétiques de la terre une certaine almantation, et Nous serious heureux de recovoir sur ces ques- aux courants voltaïques qui la parcourent une cervements de rotation du soleii, de rotation de la ferre et de translation de la terre produiraient trois genres d'inégalités. Saus avoir recours aux principes généraux de La-

place, invoqués par M. Quet, par habitude, probablement, les expériences faites à la surface de la terre nous autorisent à affirmer que la terre s'aiman-

phique de Londres, uno sèrie d'études sur lesquelles | en sens contraire dans les deux hémisphères, celle

leur collègue en qualité de membre correspondant

teurs charges d'une certaine quantité d'électricité, unémoire ni une seule brochure aux physiciens qui Ils ajoutent que les charges de ces différents con p vaient accueillt favorablement lors de son voyage densateurs et leurs et le le constant de le constant pa France, un peu avant 1830. Car l'Institut tomba rier forcement dans une proportion fortétendue, de culticrement sous la domination de l'Allemand Gauss, et les physiciens qui avaient publié dans Pleurs Traités d'électricité les admirables résumés de la belle doctrine de l'Archimède de Christiania se Ces messieurs annoncent de plus qu'ils sont occuéditions.

W. DE FONTELLE.

L'ADMINISTRATION DES TÉLÉGRAPHES

ET LE SERVICE AGRICOLE DE LE VERRIER

On nous apprend que l'administration des lignes télégraphiques a signifié au directeur du Bureau central de météorologie, qu'elle ne transmettrait pius les dépèches quotidiennes si les différentes communes no prena'ent un abonnement dont, si nous sommes bien renselgné, le taux a ésé fixé à 100 francs par an.

Justement ému de cet abus de pouvoir, qui ne tend rien moins qu'à ruiner de fond en comble le service agricole, M. Mascard a fait entendre de légitimes réclamations et obtenu un délai d'un

Nous profitons de ce répit pour signaler le fait à tous nos confrères des départements, afin que chacun, dans la sphère de sa publicité, le signale aux communes intéressées et aux conseils généraux.

On sait que l'illustre fondateur du service international était poursuivi par des haines vivaces que l'éclat de son génie excitait. Il savait que ces médiocrités, jalouses de sa supériorité, chercheralent un jour ou l'autre à ruiner l'organisation qu'il a créée avec tant de peines et qui constitue un de ses plus beaux titres de gloire.

Aussi était-il sans cesse préoccupé de l'avenir du service agricole, et employalt-il avec perséverance toutes les ressources de son esprit fertile pour en hâter le développement. Il avait imaginé de faire inscrire sur le cadre des

instruments dont il exigeait l'achat préalable, le nom des personnages qui les avaient donnés. Car il savait bien que ces donataires scraient les défenseurs-nés du système auquel ils s'étaient associés. Il était persuadé qu'ils ne lui feraient pas défaut au service agricole le jour où, lorsqu'il ne se trouverait plus là pour le défendre, il serait sérieusement me-

Mais il comptait encore plus sur l'émotion que produirait l'adoption d'une mesure quelconque dont e but serait d'anéantir co qu'il avait édifié : « Je défie mes ennemis », nous disait-it quelques mois avant sa mort, « de braver l'insurrection de tous les . gens que le service agricole passionne actuelle-

mant a Nous sommes persuadé que l'illustre astronome aura été aussi bon prophète que pour la découverte de Neptune ou de Vulcain, et que cette tentative ne servira qu'à généraliser l'usage des renseignements télégraphiques dus au Bureau central météorolo-

Mais he Verrier n'avait ou deviner que ces incroyables difficultés fiscales seraient soulevées le lendemain du jour où le gouvernement venait de créer tout un état-major de hauts fonctionnaires météorologiques, dont il cut pour sa part trouve

l'intervention superflue. Il n'aurait pu soupçonner que l'administration donnerait coup sur coup la preuve de taut de pro-

divalité et de tant de parcimonie. Si on pouvait consulter ce grand homme, je suis sur qu'il ferait il d'une statue inutile, et qu'il préférerait que les souscriptions fussent appli-



nu world Lais, 25 . THE NEW ELECTRIC LIGHT.

· LAMPS THAT OUTSHINE CANOPUS PIERCING THE AUTUMNAL KOUS ON LONDON

THE PRACTICAL FUTURE OF THE NEW METHOD OF ILLUMINATION FOR GENERAL PURPOSES.

[PROM AN COCAMONAL CORRESPONDENT OF THE WORLD.]
LONDON, August 31.—He force this letter
reaches you doubtless you will have received
the reports published here of the fire-attigations
recently made into the availability of the new electric light for municipal uses. The matter is attracting as much attention as anything can attract, "out of the season" in the British me tropolis, and though nothing like the illumination of the Champs Elysfes has been attempted here, Spices & Pond, the energetic proprietors of that colosed restaurant which a correspond-ent of yours, I remember, once rashly brought into comparison with our own Delmonico's, have given London a pretty fair opportunity of secing what the electric light of the present is and of mferring what the electric light of the near fature may be. They are converting the not very cheerful premises known as the "Galety Theatre and Restaurant" in the Strand into a vast establishment to be conducted, as their Criterion Theatre and Restaurant new are, on the funnortal principle of securing the greatest good of the greatest number. They wish to have the work done before the next season begins, and if possible before Christmas, and they have therefore act up a number of electric lights pround the edifice, some on Catherine street and some on the Strand. It is impossible to doubt when one sees the effect of those lights that the days, or, if you prefer, the nights of gas are numbered. Questions of comparative expense and of the best means of temperate and adjusting the new radiance to the needs of atrect life and the capacity of the human eye are still, of course, to be considered. But the central dominant fact cannot be desired that in comparison with the electric light, as it is now nightly cabibited at the Galety works, the gaslamp of 1678 stands where the whate-oil lamp of 1828 stood in comparison with the gaslamp of that time. It is easy to read ordinary manuscript at zight anywhere within 300, feet of one of these lights, and on poing up-stairs into a chamber over a slop structed as far from the last of the Galoty electric lamps going westward as the Post-Office is from THE WORLD office in New York you can read the pages of a duoded printed volume as confortably as by the light of the sun at dawn. This comparison comes naturally to the mind, because the quality of this light singularly resembles that of the sun in the early morning. The street lighted by it looks like a street seen at daybreak, and it is easy to understand how the night-birds of l'aris, for example, have found it impossible to ply their trades in the unnatural day it has cree for them wherever it has been used for that city. Obviously it is destined to be a sort of police torpode in all great cities, changing all the conditions of night-life, and acting upon them who work in darkness and love it, as the opening of

highways through a wild country acts upon a savage people. Of its immediate availability at anvage peoples. Or see immensate availability at-sra there can be no sort of question. It'll a the inovitable light, of the future light-house 'all over the world. The splendors of Cape Guentz and the Wolf Rock, which now dazzle and delight the verager as he enters and traverses the English Channel, must at an early day betome familiar in all quariers of the world. I suppose you know that the most insgnificent light ever yet ordered for such a purpose has been directed to be prepared for the new lightbeen affected to be prepared for the new aggi-beens which England is now constructing to re-place the famous Eddystone. The contents for building this new light-house were signed a fortnight ago, and the work is now under way. The new tower will be 140 feet in beleht, and will be erected on a ledge of rocks distant some seven 1 mites from the present light. It will be con-structed wholly of granite and iron. The rooms will be an superb an those of the old palace of the Greams, in which the surpicious masters of the world could see on every site released in shapes of all who entered them. No wood nt all will be used, but the whole chamber will be finished in highly polished contains granites. The existing tower though condemned by the engineers as certain at some not very distant day to fall and be engalfed, will not be pulled down. It will be filled in with brock and converted thus into a huge pil lar which will serve as a landmark by day to mariners, and which will be dedicated as a kind of monument to the great architect, Smeaton who first solved the problem which cost the over-confident Winstanley his life. All this, however; is of course by the way. My present object is to recognize in the first place the unnew electric light has at last become an accompliabed result beyond criticism, and in the second place the equally unquestionable fact that for certain other purposes its availability still remains to be established. Now that Purp that for extrals other purposes in artibility and it means to be extralled. Not that Front

result.

For purposes of war the power of the electric light has already made it indispensable to slips and fortresses. It so illuminates at night the sea or the country abound a fort as to reveal at great distances an alreading torped-boat or an attacking column of the enumy's forces.

"An the "giber It complete is, conditions to the first present of the condition of the last in the condition of the condition

need eccessically where no very street into required.

This of course must be done away with before the new illuminator can be made generally available for donesate purposes. But I thin you will acree with me that this can only us a question of time.

The Sun.

MONDAY, SEPTEMBER 16, 1878.

This time EDISON thinks he has hit upon a perfectly feagilds process by which he can and will drive gas out of our streets and Zani, will drive pas out of one streets and houses, and cityou, to the decret light in its drawn and cityou to the decret light in its steed. In more bellink, will be a great def-tree agent from the old one. Moreover, the rante wire is to be light, and less a scattable for cooking or four-running a service modifies or for illumination. If Eth-ox, is not decreting himself, we are on the ove of surprising exnerioners.

THE DECADENCE OF EUROPE.

Readly Immorality Among the Highest Classes —The Hoy of Rechailing at Hond. baronros, Eng., Aug.31.—As there is more of fashionable London here just how than is London freelf, the stranger has a better case. tunity of studying the humor of so cirty and of gathering the views of the influencial world upon current events than in the nectropolis. Mechanical political social and moral changes Mechanical, solition, would, and more diministers susceed each other with needs rapidity in these latter days, that it is alsoon with less to chromitist from pare with there, much less to chromitist the offices which they produce severally upon coch other. Within the last two verses we baked had the belythouse, the unbeaugraph, two selections are by no means on the each of the invartiess which are springing out of them. We have laid the Eastern question which has culminated in a bloody war, and we tertainly are not at the end of the subulators and compilentions of which it is only the province, We have recless and imagestines multiplying up. _ we, all charged with the current thought of the day. which to also to approx existing thrological aga-tenis, and leave in their place a chaos of apoca-lation and metaphysical theory which can prove an abiding since to the current and thoughtful maind, and is inverying us on to some ... w and unablescovered region of religion of which Christombom stands sorely in need. And lastly, we have the old manners and outcome o that properties the sol manners and eightoms of the last generation giving way to laxity and open social immornity which, if it continues at its present rate, bels full to turn the most ad-vanced society of the world into the most de-

EDISON'S NEWEST, MARVEL

SENDING CHRAP LIGHT, HRAT, AND POWER BY PLECTRICITY,

sting Gas to be Superseded-Edlean balving the Prablem of Birtiding the Too Great Brilliancy from an Electric Marking Mr. Edison says that he has discovered how to make electricity a chosp and practicults sal stitute for illuminating gas. Many scientific men have worked assiduously in that direction. mes have worked a sidenously in that direction, but with third searce ye. A powerful electric light was the result of these experiments, but the problem of its division into many small lights was a puzzler. Grassne, Science, Brush, Wat-laye, and others produced at most ten lights from a single mediale, but a single correct translove, and others preduced at most ten lights from a single modelne, but a single one of them is from a single modelne, but a single one of them was found to be imbacked for lighting model areo large founders to the control of the con-trol arge founders to the control of the con-trol of the control of the control of the con-trol of the control of the control of the difficult problem desired. The control of the dess which a few days. His experience with the telephone, however, has taught him to be cautious, and he is exerting himself to protect the new scientific marrel, which, he says, will make the use of gas for Illumination a thing of

sections, and in a secretic throat to protect the nor election security with the leaf of the control of the section of the sec

typestry to touch a little spring non ra-sisten on required.

coin, the same wire that there is the light to coin, the same wire that there is not a series of a said host. With the spring real rate rate from the same spring of the rate of the collection of the best point unity cook your look, and the best you may cook your look, the libest has been the same properties of the best you was to the best your look in the light of the same rate of the best you was the same rate of the best your look.

Santipie amenoa Supplement no. 1.42 enr 21,7878

HOW TO MAKE A WORKING TELEPHONE.

By GEORGE M. HOPKING

As most if not all of the readers of this Journal are fa-millar with the principle of the articularing telephone, and as a thorough understanding of the principle upon which it operates is not essential to the construction of the inter-ment, I will omit the details of the principle of the opera-tion, and will proceed at once to describe how a telephone may be easily made.

ments, I will must the details of the principle of the squer-line, and will proceed in once to detectile lays a telephone line, and will proceed in once to detectile lays a telephone Player I in the engeraling on page 2200 shows the tele-site of the same properties of the same. Suppose the Player I is a detail rectional view of the same. Figure 4 Player 2 is a detail rectional view of the same. Figure 4 per suitably the same as I effect. Figure 3, and the same process of the rectually the same as I effect. Figure 3, and I is very capitally the same as I effect. Figure 3, and I is a very capitally the same as I effect. Figure 3, and I is a very capitally the same as I effect. Figure 3, and I is very capitally the shown in the cuproduct of the same and I is very capitally shown in the cuproduct of the same and the same capitally shown in the cuproduct of the same and the same capitally shown in the cuproduct of the same process and the same and the same and the same and the same and the first the same and the same an

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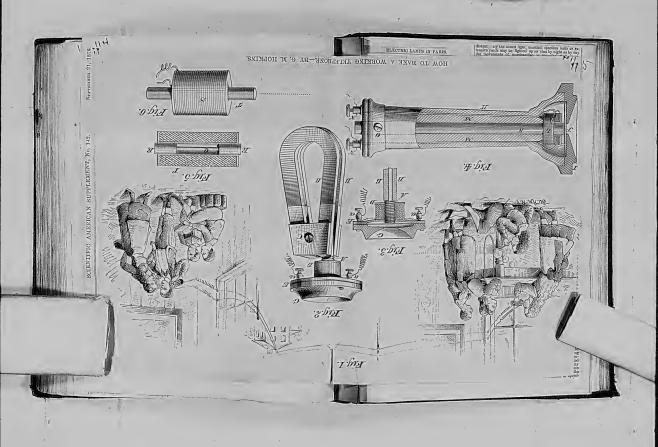
The implaces thus described is not early must have the best control of the problem of the street of

receive they holded he, and has nonsubjects, And show the control of the control

APPLICATION OF THE MICROPHONE IN .

The microphone has been successfully comployed in the detection of urinary calculi, and it may probably serve also to incluste the position of the fragments of projectiles.

—Les Nowles



ELECTRIC LAMPS IN PARIS.

a letter to the New York Briefs, Prof. Sillman gives a second on New York Briefs, Prof. Sillman gives a support of the New York Briefs, Prof. Sillman gives a support of the New York Briefs, Prof. Sillman gives a support of the New York Briefs, Prof. Sillman gives a support of the New York Briefs, Prof. Sillman gives a support of the New York Briefs, Prof. Sillman gives a support of the Garden Garden Grant Good and the New York Briefs of the New York Briefs of the New York Briefs of the New York Briefs of the Sillman gives a support of the Garden Gar

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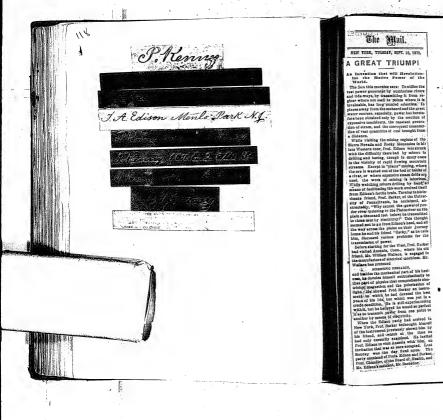
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Communace adverte; ; ex Schr. 16 1878

If Mr. Epison has really accomplished what he says he has, in cheapening and utilizing the electric light, so as to adapt it to public and private use, he has at last outdone himpell. The decideratum has long been the ndantation of this light to domestic purposes, both for heating and lighting. Mr. florson has made a good many curious discoveries concerning the forces of Nature, but so far they have been chiefly curiosities. The sucer-stul practical application of this latest revelation would make havor an ong the gas companies and the coal-dealers-but the pub-He would be the gainer. Can Epison do it ?is the ouration.

Kearney has asked Edison to invent him a new article of profamity—some swear words that will latrly sizzle when they are burded at a "simy lmp of h—1," and eurl him up like a green cu-umber. We hope Edison will myest nothing of the kind.—Norristoen

DON'I LE Your Milk Man CHEAT YOU! EDISON'S PATENT MIKTESTEP WHEN THE MILK IS ADULTERATED! WHAT IT IS ADULTERATED WITH AND HOW MUCH PRICE ONLY IS CENTS. | TWO FOR 25 CENTS. For Sale Here.



As were an expression surprise to interpretary to that that Mr. Wallaces had perfected that machine. Belief exceedingly modes in carling not for notorioty, he had shown the carling not for notorioty, he had shown the carling not for notorioty, he had shown the same than the carling not for notorioty, he had shown to see that the carling not for notorioty, to few, and these only persons whose lack of celentials known long are the carling not had been comparable than from comprehending the sons whose sack of ententian knowledge pre-vented them from comprehending its use-fulness. Mr. Wallace calls it a telemachen, and he smiled with pride as he pointed to a number of these machines, each one an improvement upon its predecessor, and each having required years to design, and nearly

Mr. Edicon was caraptured. He fairly gloated over it. Then power was applied to the telemachen, and eight electric lights were kept ablaze at one time, each belog equal to 1,000, candles, the sub-division of -clectric lights being a thing unknown to se science. This filled up Mr. Edison's cup of joy. He ran from the instruments to the lights, and from the lights back to the instrument. He sprawled over a table with

SIMPLICITY OF A CHILD. and made all kinds of estenistions. He cal-culated the power of the instrument and of the lights, the probable less of power in ment would save in a day, a week, a month a year, and the result of such saving on

The cool, impassive Prof. Chaudler also went about, note-book in hand, informing himself upon the minutess details. That a man like Mr. Wallace, after studying privately upon the subject for years, should calmly, deliberately and without ortentation, bring out before them an instru-ment calculated to revolutionize the entire manufacturing business, filled the party with

By means of it power may be obtained from places where . ver power or tidal power is abundant, or may be gonerated where feel is chosp, as r' i mines, and by means of an ordinary ca ... namitted hundreds of miles. The cable may be ispped

amazamant.

at any point and power used therefrom. Some notion of the stupendous results that may follow, should the telemachen prove may follow, should the telementon prove completaly successful, it gives in the opis-jon of Fred. C. W. Blomens of the Royal Society of Greak Britain, who has recently visited this country. In a recent address is Clisgory he said that he England a mean of transmitting power by electricity must of transmitting power by electricity mass soon be the important problem of the day. What are the English people to do when their coal is exhausted! Of Amer-ica and her great water course he said:

ica and hir great water courses no said:
"The amount of water falling one of the said of t sure of the amount of power yielded by that water in falling, would require the consump tion of 260,000,000 of tens of coal a year which is the amount now consumed by the antire world. Now, if fifty per cent. of the power used to drive the first dinamo-electric power used to drive the Bris dinamo-electric machine may be recovered from the accord; and laters, if the whole power of Nisgara could be utilized it could be distributed over the Helical Charles the United States, so as to give from that waterfall alone a power equal to the present entire mechanical force of the world, esti-mating that one-half the coal used is solely

for mechanical purposes,"

As an example how the fall of such a body

could be practically utilized by means of the the subject for years gave the following il-justration last Sunday: A series of flumes could be constructed from the edge of the scent of the American falls to the lovel of descent or the American falls to the lovel of the water below, of a size sufficient to carry all the water of the Kingara river through water whosis. With shafting this power would be used to turn the machine generawould be used to turn the machine guter-ting the electric current. This cur-rent could then be carried to New York city by conductors which are copper rods. These rods may by

tapped then at any point, wherever power is needed, and wires carried into factories just as gas is now carried in pipes through the streets. In the factory a telemachen would be pisced, of a power sufficiently great to run the shafting. Thus the entire power repuired by the State of New York might be taken off along the line of the main conductors. The amount of electricity taken off at any one point would be readily regulated in the same way in which the current taken from a battery for telegraphic purposes is now regulated—that is, by introducing soit

able resistance in the local line, So powerful are the magnets attached to this instrument that the party, while observing it, were competed to leave their watches in another room, else they would have been

Mr. Edison believes that the can so assist Mr. Wallace in perfecting the telemachen that power may be transmitted from one point to another as though it were a telegraphic message. Aiready by means of this instrument Mr. Wallace is enabled to transmit the power of the Naugatuck . 'ver a quarter of a mile. The power of this a ream is great enough to drive the ponderous ma chinery of the Wallaco factory, where Wallaco factory, where Wallaco factory, where Wallaco factory, where Wallaco factory, where Wallaco factory was a series of experiments. with the instrument has shown that in the framemission of this enormous power by elec-ONLY TWENTY PER CENT. IS LOST.

In this instrument the electricity is pro-duced by the Wallace dynam-electric machine, no battery being used. Four large electro-magnots are placed with their poles facing each other. On an axis parallel with and situated between them is a disc of from carrying upon its opposite faces a row of electro magnets, thirty in number, on each face, whose poles, facing outward, revolve as close as possible to the poles of the large magnets, called the field of force. On the same axis, but outside of these discs, strips of copper are placed equal in number to the magnets on the discs, each strip of copper being connected to one and of the wire on the magnet. The other end of the wire on goes to the next strip. Each strip, there ore, is connected to the last end of the colls and to the first and of that immediately fol lowing it. When the disc, with its magnets, is revolved by any power, the weak magnet-ism remaining in the iron itself generates a current of electricity in the wire aurroun ing these magnets. In virtue of the princidiscovered by Farraday, that whenever a conducting wire is moved to the violaity of

a magnet a current of electricity is caused to circulate in that wire, the feeble co thus generated flows around the magnets of the field of force, increasing their magnet ism. This increased magnetism reacts upon the revolving magnets, increases the electric current, and so alternately, until the magnetism attains a maximum, and that maximum is generated in the wires of the revolving magnets. This current bears for each a perfectly definite ratio to the power censumed, and they are capable of converting eighty per cent. of the espain of converting eighty per cent. of the power applied into electricity. The electric-current generated is carried by two copper wires to a second machine, the tolemagnon. This effects the reverse operation—that it is say, the reconversion of the electricity into mechanical power.

THE TELEVACION consists of a field of force and a rev olving armsture. This field of force consists of twelve large electro-magnets in two sots of six each, the poles of each set facing each other and connected together by heavy bands or bridges. In the space enclosed by these magnets, and parallel with them, is the armstore axis supporting an armstore consisting of a ring of from wire serving as a core, around which is wound an insulated copper wire in two series of fifty colls. The ends of these wires come out alternately to the right and left of the armature, and are connected with two bresk places upon their axes. Six springs, or brushes of conner wire, press upon these break pieces, each pair of brushes facing each other and opposite a pair of magnets in the field of force. The electric current enteriog the machine wes round the field of force and magnetizes the magnets. At the same time it passes through the armature, magnetizing that, so that the poles of the armature nearest to posite name. In consequence of this the field of force magnets attract the poles of the ermature and causes the armature to move. But the motion in its now position brings other portions of the break pieces in contact with the spring and causes a redistribution of the magnetism. Again, attrac tion takes place as before, and again the direction of the current is changed by the breek pieces. The magnet effect being continuous, the rotation is continuous, increase ng constantly in speed until the friction and the magnetic power balance each other. In Sunday's experiment the hodemeter

showed that the machine made 3,000 REVOLUTIONS A MINUTE, The electricity from the wonderful tele machon made be applied to illumination. It solves the problem of the subdivision of electric lights. Both the Wallace foundry and the Parrel foundry, near by, are lighted by these lights, the army of mea being formed in two divisions, one working during the day and the other up to midnight. Thickly studded as these foundries are with heavy machinery, and obstructed as the light must necessarily be by the ponderous craver drills, supporting columns, and projections a clear light is thrown upon the machinery, perfectly illuminating it. Adjustments to the thirty-second of an inch may be made without the least strain upon the eyes. A

beautiful effect or this light is its polarization—that motifed appearance which is as-aumre when falling through glass. This is the only artificial light, it is said, that is capable of producing it.

The following is an estimate, made by an expert, of what it would cost to light the streets of New York with these lights: average street burner gives a light equal to ten candles. Assuming that one of the eight electric lights produced by the power of our machine is equal to 4,000 candles, and assuming that there are 5,000 1 smps, each lamp burning 20 cubic feet of gas an hour, at a cost of \$1 a thousand fost, it would require required. The cost of the gas by this rough eatimate would be

To produce the same light by electricity would require, say, thirteen machines, placed upon towers. The cost of a single light equal to that of 1,000 candles would be three cents an hour. Each machine giring 4,000 candle lights would cost, therefore, tweive cents an hour, and thirteen would coat \$1.50

The things that he had seen in the four dry had a curious effices on Mr. Edison. He seemed wrapped in thought. Owing to his deafness the many jokes made by his friends, Profs. Barker and Chandler, were lost upon him. Oxesionally they were re peated to him by Mr. Bachellor, When Edion hears a good joke he come to stop the great thinking machine constantly working within him. He laughs heartily, and then forgets his surroundings, and re-Wallaco was explaining an instrument he has in cented that will throw alsmall stream of water with such force as to tear the flesh from the hand, "Barky," said Edison, and-denly, addressing his friend Prof. Barker,

"If a person could cut a man's throat with such a stream of water, I don't believe a jury could be found that would convict him of murder! While going from the works Mr. Edison

eaw a large iron caldron. He stopped, looked at it meditatively, and then said: 'That reminds me of what the Jersey mos quitots can dof? "Oh, yes!" said Prof. Barker, "tellus those orquito stories of yours, Edison."

"A Jerseyman was so troubled with mos-

"A freezy mane was so frombed with medical equivers on might that he went shows for our species of the state

THE ENTERPRISE.

RAHWAY, N. J., SEPTEMBER 14, 1878.

On Wedne '' evening last, a party left Linden to visit Mr. Edison of Menlo Park; ar-riving there, they were taken in charge by Mr. Edison's right bower, Mr. Hussey, who gallantly escorled them about the Laboratory, explaining the Phonograph, Meguphone, and the many inventions of Mr. Edison, of which the Chicago water telephone proved the most attractive to our visitors. Prof. Force, after carefully adjusting the instrument, explained the advantages of the new telephone, to the surprise and delight of the visitors. Each of them were then introduced and conversed with Aleck, of the Chicago telephone fame. All returned home at an early hour, highly pleased with their visit, and lead in their penises of Aleck and the standing he has obtained among scientific men.

The World.15

THE NEW ELECTRIC LIGHT.

LAMPS THAT OUTSHINE CANOPUS PIERCING THE AUTUMNAL FOGS OF LONDON.

THE PRACTICAL PUTURE OF THE NEW METHOD OF ILLUMINATION FOR GENERAL PURPOSES

(FROM AN OCCASIONAL CORRESPONDENT OF THE WORLD.)
LONDON, August 31.—Before the letter reaches you doubtless you will have received the reports published here of the investigations recently made into the availability of the new electric light for numbered uses. The matter is attracting as much attention as anything can attract "out of the scason" in the British me-tropolis, and though nothing like the illumination of the Champs Eigades has been attempted here. Spinza & Pond, the energetic proprietors of that coloses restaurant which a correspond-ont of yours, I remember, once really brought into comparison withour own Delmenico's, have given London a protty fair opportunity of so-ing what the electric light of the present is not of inferring what the electric light of the near or mearing what the creets since of the had-future may be. They are converting the not very cheerful premises known as the "Gaisty Theaire and Restaurant" in the Strand into a yest cetablishment to be conducted, as their Criterion Theatre and Restaurant new are, on the Criterion Theatre and Restaurant now accounts immortal principle of recenting the greatest good of the greatest number. They wish to have the work done before the next season begins, and if passible before Christman, and they have it position nearest currents, and too save therefore not up a number of electric lights are and the edifier, some on Catherine street, and arms on the Strand. It is impossible to and some on the ourself of these lights doubt when one sees the effect of these lights of that the days, or, if you prefer, the nights of gas are numbered. Questions of comparative

expense and of the best means of temparing and adjusting the new radiance to the needs of attrest life, and the expected of the human course still, of course, to be considered. But the contral dominant fact cames be desired, that in comparison with the electrical light, as it is now sightly exhibited at the Galety works, the gas-sup of 1878 stands where the whale-oil lamp sup of 1878 stands where the whole oil laum 11828 stood in comparises with the gu-mp of that time. It is easy to read ordinary anuscript as night anywhere within 90 feet of one of these lights, and a going up-stairs into a chamber over then situated to the shop situated as far from the last of the slety electric lamps going westward as the at-Office is from The World office in New ork you can read the pages of a duodocime inted volume as comfortably as by the ligh of the sun at dawn. This comparison comes naturally to the mind, because the quality of this light singularly resembles that of the sun in the early morning. The street lighted by it looks like a street seen at daybrenk, and it is looks like a street seen at daybrenk, and it is easy to understand how the night-birds of Paris, for example, have found it impeasable to ply their trades in the unmatural day it has created for them wherever it has been used in that city. Obviously it is destined to be a sort of peleco torpedo in all great cities, changing a't the con-ditions of night-life, and acting upon them who ditions of negabilite, and acting mon them who week in darkness and jow it, as the opening of highways through a wild country rate upon a swapen copie. Of its immediate availability at sev there can be no sort of question. It is the instribuble highly of the fature night-house all over the world. The pitcalors of Caps Grantz and the Welf Rock, which new dazzle and delight the voyager as he enters and travarses the English Channel, must at an early day become familiar in all quarters of the world. I suppose you know that the most magnificent light ever yet ordered for such a purpose has ted to be prepared for the new light house which England is now constructing to re house which England is now constituting to re-place the famous Eddystons. The contracts for building this new light-breas were signed a fort-night ago, and the work is now under way. The now tower will be 140 feet in height, and will be erected on a ledge of rocks distant some sever miles from the present light. It will be con structed wholly of granite and iron. The rooms will be as superb as those of the old pulses of the Crears, in which the empleious masters of the world could see on every site reflected in the world could see on every sate remerts a mile polished marble of the walls the moving slaspes of all who custered them. No world at all will be used, but the whole chamber will be fluished in highly polished.

""" but we will be fluished in highly polished to the world will be fluished in highly polished." Scottleh granites. The existing tower, though because granates. And existing lower, though condemned by the engineers as certain at some not very distant day to fall and be enguised, will not be pulled down. It will be filled in with brick and converted thus into a huge pil lar which will serve as a landmark by day to mariners, and which will be dedicated as a kind mariners, and which will be accurated as a kind-of measurement to the great architect, Smeaton, who first solved the problem which cost the over-confident Winstanley his life. All this,

however, is of course by the way. My present object is to recognize in the first place the unquestionable fact that for certain purposes the now electric light has at last become an accom-

plished result beyond criticism, and in the plished result beyond criticism, and in the second place the equally unquestionable fact that for certain other purposes its availability still remains to be established. Now that Parabas second Jobleckoff and that Leuton is contending with hims, it may be expected that those who are interested in the one or, the either of these illustrations of the world will from an interested or the world will from an interest relative foundation for inclination. What there are present and will be a subject to the control of the co

and between The of illuminosis at sizely the second regions of the control of the

ber gene er enamle führ. Their schuller is von der General der Gen

cent to deplete the process of commence in the sea with the first of the season of the

used economically where no very strong logor; required.

I his of centra inust be done away with befor the new libunisator can be made generally available for demeatle purposes. But I think you will agree with me that this can only not squestion of time.



EDISON'S NEWEST MARVEL

SENDING CHEAP LIGHT, HEAT, AND POWER BY ELECTRICITY.

tuminating Gas to be Superorded-Edison Solving the Problem of Dividing the Ton Great Brittancy from an Electric Machine. Mr. Dilson mays that he has discovered from to make s-ferity in close and p-retinated substitute for limits and p-retinated substitute for limits string area, and are string and are strike in the second of the strike area the result of these experiments the limit of the strike area that result in the second of the strike area that the second of the s Mr. Filian says that he has discovered

makes the use on gas a second of the past.

Mr. Lilson, be delet his source of origination, has the faculty for developing the ideas and mechanic remarked that of the factor is related the Losseeth plausferte factor is related to Losseeth plausferte factor in the composition of the past of the last remaining the composition of the last remarks of the last remarks have been suggested as a control and adjusted district of the



of Illuminating by electricity and the annal-ing of power and heat to private dwellings so that modifies can be verked and food cooled, thereby—may have bad no estata cooled, thereby—may have bad no estata to the cooled of the cooled of the cooled which passants them in a somewhat richer and recier light than they are estilled to-We hope all these latiest accounts are tree. We believe in Mr. Edison, and have confi-dence that in the future—perhaps in the mare future—all his inventionar time than more practicable and universal future than they have yet found. Then the future will be very considerably modified.

THE DAILY GRAPHIC THURSDAY, SEPTEMBER 10, 1978.

ETHICATION OF THE TELEPHONE.

A WEB OF WIEFS TO BE WOVEN THROUGH THE BURINESS CENTRES OF THE CITY.

Mr. the Western Control of The COTT.

Mr. the Western Western Control of The Cont

THE DAILY GRAPHIC TUESDAY, SEPTEMBER 17, 1878.

-Edison thinks that the power of Ningara Falls can to sent to New York on a wire and belted off for



POWER FLASHED BY WIRE.

MR. EDISON DEFENDING WALLACE'S WONDERFUL INVESTION.

nurering the Prilichem of a Corresponden who Boudes the Procedenbilly of the Tele marken - Utillating Vast Waste Perers. mattern—Utillating Vast. Wester Perers.
The great belomachem, by whose agency such men as 1st son and Prof. G. W. Rivmens, the collected English electricism, beltwee that the power of Niamran Falls may be transmitted by electricities as not formalls mortling source for all the manufactories of the State, is according with the community of the c



New Dork Dailo Tribune.

FOUNDED BY HORAC - GREELEY.

THURSDAY, SEPTEMBER 19, 1878.

The Court of the C ELECTRIC LIGHT FOR THE PARKS.

Manhattan Beach, and has formished one of the medicas of that resort. Three lamps—cach

armacapular.

The electric light has been used for three mouths pas-

FRIDAY, SECTEMBER 21, 1878

From the Janus Street, Sept 17

NEW YORK, PRIDAY, SEPT. 22.

Edison Speaking Phonograph Co.

New York, August 1st, 1878.

Letters-Patent have been issued to Theras A. Edison (on February 19th, 1878, numbered 200,521) for the Speaking PHONOGRAPH. Under those Letters-Patent the "Edison Sprak-ING PHONOGRAPH Co." are the sole parties in the United States authorized to manufacture them, or grant licenses for their use. It is the intention of the Company to protect Ahis patent, and the attention of the public is called to the following :-

PENALTY ATTENDING INFRINGEMENTS.

The manufacture, sale or use, of a patented article without the consent of the owner of the patent, is an infringement, and subjects the infringer TO AN ARREST or prohibition from the employment of his machinery, shop, works, or men, in the production of the article. The infringer is also LIABLE TO BE MULCTED IN TREBLE THE AMOUNT OF DAMA-GES AWARDED BY THE JURY, TOGETHER WITH THE SUM TOTAL OF THE COSTS. The maker, the workmen, the seller, THE PURCHASER OR USER. ARE ALL LIABLE, either collectively or individually.

Ignorance of the law, or of what the patent covers, cannot be pleaded in Court. Revised Statutes of the United States, 1874, Sec-

tion 4919 and 4951. The Company are satisfied that upon an examination of

the law, anyone desirons of having a Phonograph, will find it the cheapest to procure it in a legitimate way,

> E. H. JOHNSON, General Agent

Edison Speaking Phonograph Co.

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A TPIE D'NOBHOR

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Mierophone. Edison's

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JOHNSON,

Bood words august 1844

14000 words august 1877

THE HAUNTED MAN. would have sufficed to restore to them their temptation which, I believe, few other royal throne. I heartily wish they could have houses have been able to resist. Liberalism, from conviction and conscience become if it were fair and consistent, ought to respect to the could make any one with the large and the state of the could make the could make and not with a but those royal make the property of the could make the could 559 Protestant. But they could not; and so; this, but it does not. J. C. SHAIRP.

Emplow Paper

they refused to sell their faith for a crown-a I-IE does not look wan or worn or happard: gered:

And yet throughout life's little span

He lives the life of a Haunted Man.

Look at his elegant house in town,

"How absurd," you will say, " to tell us this Of a man who is steeped to the lips in bliss!

And his country-seat on the breezy down.

His seasble mansion, the best in the place,

And his lovely wife, whose high-bred grace

And look at the handsome fellow himself,

Of perfectly-matched and high-stepping bays,

Lolling and smoking with lordly air

In a splendid phaeton drawn by a pair

At which the bystanders turn and gaze.

Observants watch for his nod, And wait his words as those of a god.

Wherever he goes he is sure to meet

Hosts of friends of the highest dite-

Those who can best his leisure amuse.

Free to travel-ay, free as air-

Or stay where he pleases, anywhere

Without one care or anxions thought

Or fear of expending more than he ought

Whatever his fancy, whatever his whim, He can have it-'tis all the same to him :

For the Donesster, Ascot, or Derby course;

Hunters at Melton; a favorrite herse

A villa at Henley; a chilteau in France,

Members of "ton" and the "upper ten"; Hosts of friends from whom to choose

Would adorn a throne; then think of his pelf,

THE HAUNTED MAN. " And he went away somewist, for he had great possessions."

Dut yet throughout life's little span He does not seem wretched or scared or stag- He lives the life of a Haunted Man. Ay, you may smile; but 'tis simply true : He has owned to me what I now tell you. He fears a thing that you cannot fear; He hears a voice that you cannot hear. A carking demon sits on his shoulder, And year by year speaks harsher and belder, Saying, "O man! in thy strength and bealth, What art thou doing with these and wealth? High-cultured intellect, vigorous hand— Are not these fit for some world-work grand? Far humbler men, possessing neither, With a very small poetion of money either, Have wrought so nobly under the sun That heaven for earth seems partly won. But you, mere butterfly-man I-but you-Tell me what is it on earth you do? You buy false pleasures that please no more; You leave all wrongs as wrong as before, Wealth is a glorious, splendld power Placed in your hands for this life's short hour; Not thine to purchase more summer friends, But to use it largely for noblest ends. Thou may'st not use it without stern heed, Lest it fosters imposture and pumpers greed; Thou may'st not fling it with scornful hand Broadcast amongst a parasite band, Nor think to secure an easy heaven By tithes of treasure carelessly given.
Hast thou not heard it, hast thou not read What the Master once to the rich man said ?"

Yes, o'er the waters and storms of time Have floated to him those words sublime: " If that thou wouldest the danger flee, Come, take up thy cross and follow me. Those words indeed have sunk in his heaet, And he yearns to play the strong man's part; But luxury chains him down to earth, With its weary pleasures, its hollow mirth; He feels his soul fast sinking down; He hath shunned the cross and lost the crown He has beard the words, and turned away: They will haunt him to his dying day.



Where with open house he lives en prince; A moor in Scotland; a yacht at Ryde. What could a man want more beside? All this is true; and I grant still more. The man himself is no purse-proud hore; Not a sensual brute, nor a vulgar fool: Well-ben; brought up at a public school And pleaning a fair amount of knowledge Ar Alma Mater's favourite college,

East 23 ø

SPEAKING MACHINES. By PROFESSOR W. F. BARRETT.

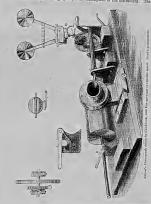
The previous article we described the to a far more wonderful achievement, the attempts that have been made to record mechanical reproduction of speech by means and artificially to instate the articulate of Mr. Edison's phonograph. The extreme sounds of the human voice. We now come simplicity of the instrument is one of its



most surprising features. We have nothing year. It needed the experience of an actual larer that was not known long ago, nothing that the properties of the

SPEAKING MACHINES,

their motion upon a sheet of timfoll, so that the country of the c



mediats of a brass cylinder that can be | shall; so that, were a fixed pointer placed outsted on its axis by a handle, the speed of rotation heaps to some extent constant of the proposite ones of the growth as the shall be attended to the call. Associated the circumference of the cylinder head of the interment, it best extended on the cylinder head of the interment, it because the circumference of the cylinder head of the interment, it because the constant of the stand of the interment, it is a spiral growe, having the terms "place" the impossible constant of the stand of the interment, it is a brain of the stand of the interment, it is a brain of the stand of the interment, it is a brain of the interment of the interment of the interment, it is a brain of the interment of the interment of the interment of the intermen

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Fig. 1. Appearance presented by emboured Foil of Photograph.

sentence has been spoken, the disc and style are drawn aside, the cylinder turned back to its starting-point, and the disc and style again placed in the position they first occupied. Once more rotating the cylinder, the style rises and falls as the now embossed foil passes beneath it, and the motion given to the style is communicated to the disc, and thence to the air around. The air is thus thrown into a state of vibration similar to that to which the words originally gave rise. The articulation, though distinct, is not so loud as the original sounds, though when strengthened by a trumpet placed over the mouth-piece, quite loud enough to be heard by a large room fall of people. The vowels come out the clearest; such words as Canada, tapioca, are remarkably distinct. But it is by no means limited to such simple words; it can introduce itself with unmistakable distinctness by saying, "The phonograph presents its compliments to you all, Perhaps nothing is so distinct and ridiculous as its reproduction of laughter. Nor is it confined to speech; it reproduces a song, and even a duet, with considerable fidelity. Here comes in the advantage of using a clockwork means of rotation, to which we shall refer in the sequel.

middle of one of the grooves. A sheet of the cylinder, about one foot per second, a stout tinfoil is tightly fastened round the single spoken word produces a multipale Stout innour is ugaity asserted round the cylinder, and the mouth-piece adjusted so of the markings, which occupy a consider that the point on the displaying lightly able length. Thus, the word details is rethat the point on the maphiagan nightly affected in the next diagram, Fig. 17 in Speaking into the mouth-piece in a disthat and deliberate voice, and at the same cocurs between the pronunciation of the the and combon to took the control to the control t nicated to the disc record themselves on the length. The phonograph cylinder, rotated foil in the shape of minute indentations, at a given speed, will furnish, in fact, a very which, examined by the naked eye, have the delicate and accurate instrument for recoal appearance given in Fig. 1. When the ing the time interval between two synals or the vibration-period of any articulate or musical sound; and for these purposes it will probably be of great use in acousic

When the indentations on the tinfoil are carefully examined through a magnifying glass, characteristic differences are observed Through the obliging kindness of the London Stereoscopic Company, which firm has pur-chased the patent rights of the phonograph for this country, the writer has had the opportunity of making a series of experiments with a very perfect instrument, and has sulmitted the various tracings to microscopic examination and measurement. The following diagram, Fig. 3, represents the appearance

measurements.

A --- 09 09 09 00 00 E @ @ @ @ @ @ 1 11.000 000 000 000 000 (1.000 000 000 000 y, 000 000 000 000 000 00 00 60 09 ~ ~ ~ ~ Magnified view of the Tearmer of the Ven 18 units produced by Planograph.

presented by the vowel sounds (English pronunciation) under a low magnitying power;

As a submitted for the endingry control of in this page in them Fig. 3; the phone-graph from seed "battle" slatin tip percentage of the cylindric largest a state of speed of about one find for these length of the maning of matter. Fig. 19 percent of page of largest in presents it symbols of the first of the first percents in symbols of the

SPEAKING MACHINES.

and Fig. 4, the impressions made by the association when the cylinder was turned the letters R and S. reverse way.

R 000 000 000 000 000 000

8 ළපුප ලපුප ලපප ලපප 4. Magnified view of Phonograph Tracings of R and S.

These separate impressions, it must be home in mind, are repeated many hundred cords yowels clearly, and from those yielded times in the record of a single utterance of each of the vowels; the measurements, in consonants, inasmuch as the phonograph fact, indicate the individual vibrations which curves give both vowels and consonants link themselves into an articulate sound, and far transcend the power of the ear to discriminate singly. The actual size of these 'riminate singly. The actual size of these 'rim's 'rim criminate singly. The actual size of these impressions varies, of course, with the rate of This means that the delicate 'upper partials,' rotation of the cylinder, but with a speed on which all brilliancy depends, are absent." of sixty-four revolutions a minute, the circum-ference of the cylinder being thirteen and a quarter inches, the youel c (as in see) leaves We believe that its inventor has sought to a series of oval impressions, each of which convert its impressions into electrical signals, is related of an inch in its longer diamend thus transmit, as well as record, the meter. This will correspond to a period of actual sounds of the voice. This achievetime of about '0012 of a second for each impression, or equivalent to a note giving in which case the telephone will be in part superseded, as with the phonograph the ever, he regarded simply as an approxima- usual battery currents can be employed, and tion, pending fuller and more perfect in- hence the many sources of disturbance which vestigation.

the disc back to its starting-point, allow it to speak as it retraces its course? Under such individual voice. In this case we may circumstances most sentences are rendered treasure up for untold years the words of unintelligible; a musical air is strangely in- our friends, and at any time listen to their numering one; a musicul air is strangery in-verted, but the result is very different in the case of elementary sounds, such as vowels the machine. Thus we shall have phonoand consonants. Professor Fleeming Jenkin graphic reminiscences as well as photoand Mr. A. J. Ewing have shown that "not graphic records of those we love or esteem; only are yoursel unaltered by being spoken and the backwards, but the same fact is true of conimpressions of the embosted foil may evensonants. Whether the pulsations of air be made in a given order, or in the reverse order, the ear accepts the sound as indicating the ear accepts the sound as indicating the corded, but, at the same time, any number same letter. This is true of all the simple reproduced. At present, after five or six vowel sounds, and of all the simple consonant repetitions, the sounds get blarred, owing to vowex counts, and or all the sample consonant, repetitions, the sounts get bairred, woung to sounds, including or course, several condi-tudentions, which in English are spelt with two threates, and a green of the properties of t supple communits. Havior, as the authors of several improvement havie teem notes in the support, may not rescribed part may be taken the details of it is mechanism, remined as a standard of what really consistents a fine of the support of the sup

Professor Fleeming Jenkin's researches on the phonograph are still in progress, and are likely to yield some most important results.

By an ingenious arrangement he obtains vertical sections of the impressions made upon the tinfoil, magnified four hundred diameters. These "speech-curves" differ from those given by the phonautograph, which only reby the logograph, which succeeds best with

interfere with the tiny telephonic thrills may Some of our readers may ask the question, thus be surmounted. If a material, somewhat will happen if the phonograph cylinder what more plastic than tinfoll, can be found, be turned backwards, that is, instead of moving the phonograph may yet preserve for us all

Frema plate

using the state of

most surp here that that any not have so rudio instrume its reput tained b ports re

engraving on p. 561; the smaller cuts above "ha," or the noise that he made, as carmusical air the clockwork motion is most it is) in a glass bottle amongst other ancient relice. Important, as the partn of the notes reproduced varies with the speed at which the cylinder is turned. Another improvement is giving out; for example, it would be useful | poised, so that the least motion would will conclude a poised programment record and means of recording the speech of the writer of the poised place process of the poised place process of the poised place process of the poised place process of the poised place process of the poised place process of the poised place process of the poised place process of the poised place process of the poised place process of the poised place place process of the poised place p Norm american inmans, or of the aborigines | we might hope for the record of the voice as of Australia or New Zealand. Even such more remote distances than is possible at the state of the control of the voice as the state of the control of the voice as t slight changes as take place in the pronun-ciation of English from century to century can in future recorded; so that a speech by Mr. Bright or Mr. Gladstone may be re-

delivered a thousand years hence in the accents of the present time. accents of the present time.

The phonograph, in fact, almost converts into a reality the grotesque ideas of the ancients. If all the phonograph been in existence in the time of our Lord, Joseph's

engaving on p. 501; the smaller cuts anove that no made, as car-the instrument representing details of con-struction. When employed to reproduce a still be preserved (a Romish tradition asserts

cylinder is turned. Another improvement is desiron of the notes of eminent sangers that a means of partially damping the wheatmont of the thick, for it is found that articulation is more distinct when the recondary characteristic many of the control of the secondary characteristic many of the control of t set up in the case are nearbyset up begoing to set in motion maximizing motion storal give touching it with the finger; a better expeforth a song by Patti or Sims Reeves, is, howthe description of the state of fragment of india-subber tubing between the of wind instruments can be admirably reprofigurent of indistrubber tubing between the point and the disk, and even a film of gett; the point and the disk, and even a film of gett; the command material of the embosing point and the disk of the embosing point and the disk of the embosing point and the disk of the embosing point and the disk of the embosing point and the disk of the emboding point and the emb form and material of the embossing point lais other and material party a diamond or graph, and played an air with variations, applier point being best, from the extreme the absolute and distribute and distribute the extreme the extreme the extreme that the extreme the extreme that the extreme the extreme that t supplier point being best, from the extreme hardness and durability. By attention to giving the reculiar expression of the player, and winding up with the flourish which the ment becomes surprisingly excellent. Mr. cornet player considers the crucial test of ment becomes surprisingly excellent. Mr. Edisjon has help stated that his assistants have correctly taken down, as the phonon of have correctly taken (nown, as the phono-ingraph delivered) or more columns of graph delivered to more columns of notes rose in pitch far beyond the range of the course, playing the variations with an aca newapper article authorities to them, and sultout the loss of a word, though the article had been spoken into the apparatus the figure and present. The embodies of the article of could refer to the end of course he removed from one form. they were not present. The emoorsed rout of the conformation of the present of the conformation one instru-ment and attached to another, and the mea-tance will be followed when the and it was mann that attached to another, and the mass sage will be faithfully delivered when the the whisting, and the words of the potential the whisting, and the words of the potential the whisting. nachine is set going. Hence, two friends at converse with another a tile antipoles, per-vised both persons have phomography, and the fine of the person of th

W. P. BARRETT.

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ports :

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adults beyone occasionally due to some "read. Such a best security and accorded by the payer actions lessed ground, which, as help admitted by the payer actions less than the payer and

The Electro-Magnet a Receiving Telephone
The result, I have arrived at whilst experimenting in this
irection seems so interesting, and at the rame time, I believe, direction seems so interesting, and at the rame time, a believe, movel, viz, that a good receiving the frome come to make from electromagnets above without any vibrating dispiracym, that I hope by put the patients of the provided the provided that it is not those patients which nowadays so greatly hamper true scientific inver-

In my earlier experiments I made on ele

Colucayo Sch 15.1578.

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Il gratily increases a paider or separit-tendent's efficiency by abroling activa-tendent's efficiency by abroling activa-tion of the separate separate separate separa-tivities are separate separate separate separate separa-tivities appearance of the separat

Geo. H. Bliss.

142 La Sallo Stroot, Chicago, Ill. both of these were on some page GRIEST'S

Mechanical Pen DUPLICATING PRESS





This Cut shows the Duplicating Press which accompanies each machine. The Stencil is shown fastened in frame and printed duplicate lying on the bed of the A new system of Autograph Writing and Printing, whereby from one to twenty thousand copies can be produced from a

thousand copies can be produced from a single writing. Agents wanted in every county in the United States not aircealy taken. SPECIAL DISCOUNTS are made to Chercher, Sanday School and P. Alf. C. sincedsized Do not purchase until you have corresponded with us or seen our instruments. Address . GRIEST MR. CO, 1248 Stale St., Chitego, III.

. Che Sale 20 The Tribune

MR. EDISON'S LATEST DISCOVERY.

The last discovery of Mr. EDISON, Host on acconomical and utilitarian point of view, is one of the most important he has ret made, and one which, when perfected, will be desand one which, whose percents, was no dust tined to revolutionize the present spaties of illuminating. It seems to be, specially char-acteristic of this remarkable; genius; that he not only branches out into new paths of his own and makes independent discoveries based upon new ideas, but that he takes up partial discoveries of others, or principles hat they have left in a crude state, and instantly carries them forward to their com-pletion. The telephone and quadrupited were instances of this fort, and now he has announced another, namely, the new appliinnounced another, nametry, the new appul-cation of the dynamo-electric puckine too. Illuminating purposes. The principle of electricity as an "huminator is not new. It has been too 1 and 10 ar-perimented upon both in this comtry and Europe with remarkable learly . In Paris it is already in use for illuminating large spaces or structures, and it has been tested in Chicago, Cincinnati, and some Eastern cities with successful results up to a certain point. The great difficulty hitherto has been to subdivide the light and to diffuse it equally over a given space. The machine which Mr. Editor recently examined was the Wallace, at Ausonia, Conn., which, though one of the most powerful in the world, can only divide the light into ten separate lights. As these are equal in power to 4,000 candies, it will be seen at once that they are im-practicable for general use, as the effect would be to blind every one using them. The machine set Mr. EDISON to thinking and experimenting, and 2 was not long before he compassed the result for which the whole scientific world has been seeking so long. By his process he can produce a thousand, or ten thousand, or, as he claims, thousand, or ten thousand, or, as he casine, an infinite number of lights from one mechine. By this process Mr. Edmon ob-tains a more brilliant light than that of gas. Its use is much more convenient, as a single wire furnishes the electricity. No matches are needed, as touching a spring lights up the house. No new fixtures will be needed, as the old gas-fixtures can be utilized. We shall have not only a more brilliant and convenient light, but a cheaper one. He pro-poses to give the public for from 12 to 15 poses to give the public for from 12 to 15 cents the same amount of light of a better quality as we now pay 93 for to the gas companies. Besides all this, he the gas companies. Besides all this, he will also furnish from the same machine power to run a sewing machine, elevator, or any other mechanical contrivance needing a motor, and heat sufficient to do the cooking for the family. Leaving out the power and host, the whole public will rise up and call bim blessed for the prospects of illumination

alone he now holds out. The happlast day that suffering humanity has ever experienced will be that day when the devoted house keeper uproots his gas-meter and sends it back to headquarters with his compliments. The anniversary return will always be known in the family as Ecison's Day. Mr. Enmon has done much for the world in the past; he may do a great deal more in the future ; but nothing that he has done or may do can compare with this new development of his genius, which threatens to break down a gigentic menopoly and end the days of gas-bills. He is the itan of the nicetrouth century.

NEW YORK HERALD

BROADWAY AND ANN STREET,

"STOP THAT NOISE."

WHAT PROPERSON EDISON IND DONE TO ANA-LYZE THE SOUNDS PRODUCED BY THE ME-TEOPOLITAN ELEVATED BAILWAY -- FURTHER EXPERIMENTS TENTERDAY.

EXPENSIONAL TENTERDAY.
The labor of Professor Edwin on behalf of the Metrepolitin Elevated I altway, Company to determine
the various causes of the noises produced by the
Various to Satisfaveous has been reproduced to the
Various to Satisfaveous has been reproduced to the Professor Edison houself thinks that he hasned only analyzed the notice, which he declares companies, but has acceptained the exert cause of such portion of it. New, Receiver, it is expected that the reduction of the autoperce to the residentializing the route will be a comparatively simple thing. The Professor may a comparatively supple toldy. The Protessor any than the company will be sale to reduce the noise more than fire per cent. One of this suggestions to the company has already been appropriately the taking upof the raise on one track for a short disteaco, in the neighborhood of Twenty-third street, and relaying them over outpiers made of lead, rub

her traying however, the services of the "Winard Gyesterday, however, the services of the "Winard Gy a different service, Wymerday, naware, the naview of the offices of the offices of the first property of the offices are the state pages for a distance servine, and the state of the

the same promoted by different collections of the collection of th

some til er vilke til en som en der prevense som en

the control of the co

REPORT THE GRAND PORT. The irrestigation into the slieged attorpates and injury caused by the noise of the Metropolitan Ele-vated Hallread will be continued by the Grand Jury vance Haifread will be confined by the Grand Jary ju-day. It is understood that the pennolesi, directors and sugments of the local, as well as those degrees who have experimented, or have offered to experi-ment, with a view of dedicating the code, have been actionness to be in niteriance. There will note to present a large number of consistent will note to present a large number of consistent man.

New-Dork Daily Tribune

FOUNDED BY HORADE GREELEY SATURDAY, SEPTEMBER 21, 1878.

THE ROISE ON SIXTH-AVENUE.

SEREMO FOR A RELEGIO.

THE SEREMO FOR A RELEGIO.

THE SEREMON FOR A RELEGIO.

THE ORIGINATE ORIGINATE AND A RELEGIOUS AND A RE Now-York, on the Holsen River Endlessed in the upper part of the Island, and along Broadway, to obtain a record of the different degrees of noise at such points of observation. The results will be known when the phenantherraphic records are cannined microaccoleally. The purpose of these observations, it was stated by an The purpose of these observations, it was actually as different of the company presenting, it is robust it gathered to the company presenting, it is robust it gather than the contemporary of the contemporary of the company of the c

Which are many to po-tred.
The report that the rate of fars is to be reduced to 5, costs at all heurs of the day is desired; settle a measure has not been thought of by the Beard of Directors. DEPENDING THE METROPOLITAN ROAD.

DECLARATION OF PHYSICIANS AND SURGEONS THAT THE NOISE IS NOT INJURIOUS TO BEALTH.
Three memorials, signed by more than 200 These memorials, signed, by more than 500 physicans and travers and 500 physicans and travers and 500 physicans and travers and 500 physicans and travers and 500 physicans and travers and 500 physicans and travers and 500 physicans and travers and 500 physicans an

Hospita, she believ pay the Bibbettan, which you can be supported by the control with the same control with the control with ODDOUGHA ED ATIDS IN WHISEES. the other department of Further boths, only in the other hand the best later of the silicity o The Sun MONDAY, SEPTEMBER 21, 1818, 10 The AN ADMINISTRATION AND PROPERTY AND ADMINISTRATION OF THE ADMIN GAS IN LUNDON AND NEW YORKS OF

Described and described For the simulation of the second of the pro-flex New Action 1 and

The English Mechanic

AND WORLD OF SCIENCE AND ART. ----

PRIDAY, SEPTEMBER 6, 1878.

Ejectrio Light.

V. Shoolbard read a poper "On Electrio in which he contended that electric lightings desired to supercede the use of gas, ablent said that electric light was still in and that any identication with reference receiving a part of the property of the prope

the second colors of the colors which is the second colors of the colors

THE LAWS AND PRINCIPLES OF ACOUSTICS IN REPERENCE TO THE TELEPHONE, MICROPHONE, &c.

ADQUISTORS IN INDERSENCE TO CHIEF CONTROL AND CH

the polary investors of chemicary material in an extension of the control of the

AN ACOUSTICAL CONSTANT. AN AGOUSTIGAL CONSTANT.

1/769.]—It is well kears the last the number of severe visuations executed in a streng price by the severe price by the severe price by the severe price by the severe price by the severe price by the severe price of the severe price of the severe price of the severe price of the laws bearing on the matter leads to the

 $\mathfrak{n} = \tfrac{1}{d I} \times \sqrt{\tfrac{n}{8}} \times k,$

n di V g ..., n us number of vibratione per second, i ... of the string, i ... its diameter, S ... its c gravity, T - the stretching weight, and is to constant, which it is orident must be the

ame for all strings, since n depends only on the four lements taken into account in the expression. No ext-book with which I am acquainted gives the also of k directly, but in Cantot occurs the

n = 0.8257 × √c

where c = longth of string, whose weight is equal to the least-on. From this forested, many be calculated to the least-one of

Novemile-upon Tyne. Wm. John Grey.

Neuropie-spec-Type. Wm. 2-bin Grey.

A MW TOTAL GOT print PERNON

[137]— Jord the interment the object aimed at

IRIAN MATERIA Control of the control of the

arms of the beam are o'presents, and a negative or possible express test through the primary roll which express test through the primary roll which primary plants are the results of the primary plants are t

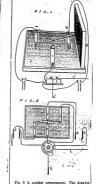
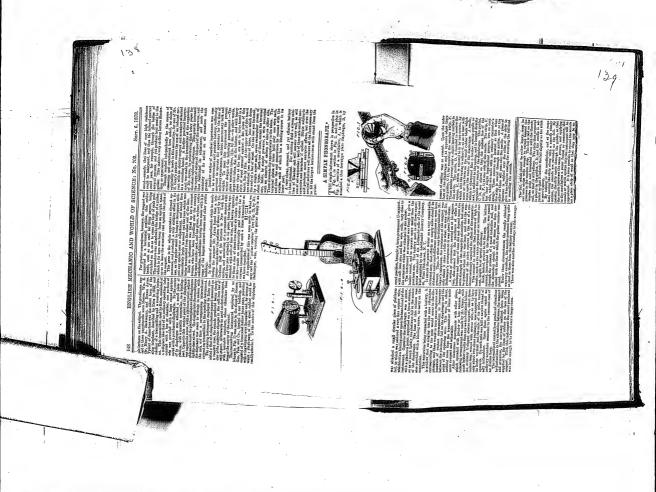
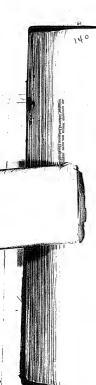


Fig. 2 is another arrangement. The drawing shows the orillating beam, LL, with its two arms invalated from each other, and nathesty los abinate factors on contact and the contact of the contact factors on trainless trainless the a distinct circuit. These circuits are wound on the loduceolous, Ljout as it depits they respectively, no populate directions, and consequently induce coposite acturents in the secondary of white is attached to the loss wire. Caniford Doblin. D. D. Redmond.





Church Entertainments.

TO PASTORS AND TRUSTEES: TO PASTURS AND TRUSTERS:

The analysis of the property of the

J. C. O. REDINGTON. Manager Musical Agency,

(Pianos, Organs and Music.) 18 FOURTH PLACE, BROOKLYN, N. Y.

ONE NICHT ONLY.

CONCERT.

The Recording and Speaking That most amazing mar

PHONOGRAPH

vel of all marvels of all time, (the invention of Prof. Edison) has in its improved form, been added to the Telephone Entertainments.

AND THE MARVELOU A Telegraph line is put up and music sent by telegraph to the audience, and distinctly heard throughout the largest churches and opera houses

by an entire audience at once,

SINGING

AND IT CAN BE PRESERVED FOREVER AND BE REPRODUCED, WORDS.
TONES, INFLECTIONS AND ALL, AND DISTINCTLY HEARD) AT ANY
TIME AND FOR ANY NUMBER OF TIMES: EVEN HUNDREDS AND THOUSANDS OF YEARS HENCE.

The vibrations of air caused by the voice are received and recorded on a plate (which can be duplicated to any extent) attached to a cylinder, which is revolved. Afterward, then the cylinder is turned at the same speed, the voice is faith-Afterward, when the cylinder is turned at the same speed, the voice is fath-fully reproduced. The audience will have abundant opportunity to witness the operations of the Phonograph. Voices will, during the Concert, be received, re-orded and reproduced, words and all, in the hearing of everyone present.

ENTERTAINMENTS Are Given for the Price of One.

14. THE SPEAKING PHONORS BY LEPHONE. Well known mucker that RAFFELOUS BIRKING THE EPHONE. Well known muckers and distinctly.

15. THE WAR PELOUS BIRKING THE EPHONE. (Conversation and the rate of the rate was the large man and the rate of the rate was the about persons and the rate of the rate of the large will allow the rate of

The Telephone Entertainment in Michigan. NEV. W. X. NINDE, R.E., Pagenet Cavract, M. E. Corrett, Dermet, page, "I may proved by a large andlesse of based page and embedding a large state of the page and embedding and embeddin

THE VOICE PRESERVED FOREVER! THE MOST AMAZING

MARVEL OF ALL MARVELS,

of all time (the invention of Prof. Edison), the RECORDING AND SPEAKING

PUT YOUR VOICE AWAY ON A PLATE, And it can be preserved farryer and be reproduced. Words, Toses, Indections and all, (and distinctly hearth, at any time and for any number of many reven humbered and inclosured or plant beauth.

Linux; oven hundreds and thoiseands of years faster. The viterations of aircrassed but the vice are received and recorded on a piate (which can be displained to any settom) attached to a printer, with its provided. Afterward, when the spillates it thread and any operational to a received and the products of the produ

FOR THE PRICE OF ONE.

IN-THE SPEAKING PHONOGRAPH. IN THE STREET STREET,

4III—A VALUABLE SOLING.
and the Telephones.

£th—A FULL JUHLEE CONCERT by the Street Sines Quarterse, (two ladies and two gentlemen,) among the best voices and singers of the colored race, (rendering not two gentlemen,) among the best voices and singers of the colored race, (rendering not two gentlemen,) among the best voices and singers of the colored race, (rendering not two gentlemen).

No Postpenement on account of the weather. Tickets for sale at the usual places and at the deer.

Evening, April 4

Courses House.

MR. EDISON'S USE OF ELECTRICITY.

WEN'TO BE CONVEYED OVER WIRES WHAT

MACHETO-RECOTHED MACHINES CAN DO-UTIL-IZING THE POWER OF NIAGARA-EXPERIMENT-ING WITH THE ELECTRIC LIGHT.

Thomas A. Edison is now ongaged in mak-Thomas A. Edison is now obgagot in making some new experiments with electric currents. A reporter of THE TRIBUSE, who visited the workshop at Menle Park, N. J., found the inventor at work with a new apparatus which had been set up in the building on the apparatus which had been sot up in the building on the pursions day. It was a magneto-electric machine, man to by William Wallace, of Amsonic, Come. Mr. Edison re-cently risked Mr. Wallace's imanufactory at Amonts, and spont a day in camulaing the machines which have been contracted thore. Mr. Wallace has manufactured electrical instruments for several years, and has spent much time and money in perfecting a 'magnoto-electric machino, which he calls the: "!tolemachon." cleative minimum, when he can't the: "finitemental," its superficielty over other machines of, the jame, And consists mainly in a vice adjusting at of, the several parts, and a proper proportion between the fields of force and resistance. It produces an commons amount of, directivity for the amount of force used in propoliting it. As in similar macalass, large electro-magnets are placed with their poles facing each other, around a moving axis which curries other electro-magnets. The moving magnois are armatures, wound with coils of wire, and they are made insquelle by the passage of electric currents through the coils. When the axis is turned, and the coils through the coils. When the axis is turned, and the coils are made to pass mearts. In extreme the remarks, overtunes of the contract of the co Ing magnots on the many, arr, whence that meson me man-chines so perfect that mearly '80' per cent' of the power used in propelling them is changed into electre." anotive force. The excellence of the machine in that respect makes: it valuables for transmitting power by neans of electricity.

It was discovered some years ago that when the elec

tricity produced by one magneto-clettric machine was made to pass into another the axis of the second mamany to post into absolute the axis of the second ma-chian was made to review it an opposite direction from that it wides the axis of the machine producing the that wides the axis of the machine producing the control of the control of the control of the control of the control of the control of the control of the way, the power such to drive the control of the way, the power such to drive the control of the duced by the second with the local as exper-ped producing the control of the control of the through the wires connecting with the sitemathom, the Rebutters the coils about the moving areastures, and makes times through reagoners. For year or at one on, it makes them strongly magnotic. They are at once at-tracted toward the large magnotase the machine, and the exists turned. At the same time the break pieces on the axis is turned. At the same three the brenk places on the axis are brought in contact with one after smeller of the aprings through which the electric current passes; the electricity in the cells is rearranged, and the moving armatures are repelled from the large magnets which had attended them. This constant change in the action of the actionary, and more measurements.

and attended time. The result of the managed to write and the state of

"The only way to lesson this resistance," Mr. Edison "Ton only war to fenon this reteinano," Its Zeiton spid, "its Discrete the rise of the commission road, it has been found it that the residuace of a wire decrease; as it sates in fenerace, in her mits of the spins of it is discourse. These as were on-fourth of an inch in this discourse. These as were on-fourth of an inch in this discourse. These as were on-fourth of an inch in this discourse of the spin of the states incred. It is the case of the spin of the

mile of the thin. A wire three-righths of an inch t and nine miles long will conduct as much electrican be carried one mile over a wire one-clatch can be carried one 'mile over a, wire-one-canno c inch theke. Thus when you double the thickness wire, you can make it four times as long, and if treble its thickness you can make it, nine times as and so on, without affecting its restance. In this it is possible to convey a power many miles by in ing the size of the conducting reds. Very large of reds would be necessary to carry the power of a fall of water, like that of Niagara; and the dising which such a power could be carried would be limit uspen usen a power count no carriest women or min-the coat of the rods. It would not be practicable a carry such a power across 'the fixte of Kew-York' think the power of Niagara Falls could be used a lance of twenty miles or more—say at Buffale—wi expense than that of steam power."

express than that of steam power.

"The is no reason," Mr. Elizen continued, "will natural power in rivers and water falls, near cities, may not he used in place of steam, through the properties of the properti motive power in this way will be much less the cost of steam power. In the mining regions, water power is usually abundant, conducting re be run into the deepost relines and cledricity, used, in places of compressed air, to work the di drills. Not easy that, but the magnet-welcotte of Wallizer has in hir manufactory some numebils are able to mall copper wires ton tecl bis at the control of the control of the control while currents of electricity are made to fave. He has current of electricity through vate containing ere, and the purecopper has been dissolved out it line. Then by paring the currents in an oppose tion he has presistated the pure copper is layer not see why this method of reducine orca could carried out in all the mising districts."

makes with this authorid of positivate order could a could be a country of the co

ne, you can saily make a great fortune." It is a series of the series of

Power from Electricity Sal 30 To THE EDITOR OF THE SUX-Sir: In the comments made by Mr. Edison through your reporter to the writer's criticisms upon the above subject, Edison spaces Dr. Slemons of England to prove that only 20 per cent, of the England to London quality they greated of the option of the option of the option of the option of the option of the option of the option of the option of the option of the option of the option of the option of the option of the Option of th

The description of the present light of the present registration, and the control of the

nble to de this."

There is a possible economy in transmission of power from a dynamo-electric machine through a conductor to an electro-mator, when the two are constant electric machine the two are countried only a sheet distance, and where is in the minimum and the mater experience of the conductor of the con

New Inventions. Leven ..

An improved Mechanical Telephone has been patented by Messes, Schnyler S. Parsons, Francis R. Shaw, and George N. Daniels, of Chatham Center, Ohio. This invention consists of a diaphragm of cloth or other textile fabric, mounted in an open wooden case. The transmitting wire branches out into a number of smaller wires, jointed to the main wire and attached to the disphragm. The main wire is hung to insulators, made of sheepskin, placed in a frame with a contral opening, the frame and shrepskin being slitted, and the latter re-enforced at the slit.

An Invention Wanted in Politics. Mr. Edmon has invented so much that Mr. Edmon has invented so much that people began to think he could invent almost anything. If he has got through with the mysteries of sound he might do well to turn his attention to an invention

just now very much needed in politics.

People generally profer voting at every election to slaying at home. They would like to vote this autumn. But they are greatly bothered to know how to vote. There are three parties in the field, all richly deserving to be defeated.

Whoever votes for one of them will have the great satisfaction of feeling that he votes against the other two. But this feel-

ing would be one of immense gratification if he could vote and vote against all three of there parties.

It is too late to get up a fourth party—
which would amount to nothing also—and
nuless Mr. Edison can invest some new

method for the expression of political sentiments many thousands of voters will have mo satisfactory way of voting this year.
What they feel like delegals to get all three
of the tickets into the hellet box with a No
written on the back of every one.

The Democrats have forfeited every claim to support by winking at the unconstitu-tional Electoral Commission bill. The Republicans have been in office too

ong. The Greenbackers should reach a gold basicato he entitled to the votes of intelli-

The Electric Light in Albany,

The Albany (N. Y.) stryes says that the new Capital Commissioners have for some time been considering the subject of lighting the Capital. The electric light has been proposed, and Mr. Fred Law Olmstead, who made a trip to Europe with authority from the Commissioners to purchase a light, reported favorably on the electric light which he saw in operation in Paris, but failed to purchase for the reason that he was of the opinion that as good a light as the Granune light, which he saw there, could be secured in this country at less expense. By request of Architect Eldlitz, the Aranux & Hochhausen dynamo-electric light was exhibited by its inventor in the Assembly Chareter for the purpose of testing its power to light the room, which is \$1 by 96 feet and about 65 feet high. The single light which was suspended i at two feet from the main arch of the ceiling of the Assembly Chamber, was of great brilliancy, and was of sufficient power to satisfactorily light the immensa ruces,

so that even the fine tracery of the decorations teas plainly discernible neroes the room and in every portion of the ceiling. The light is a while light very great power, and although the test was murely to accordin its strength and lighting capacity, and was subject to some defects for the reason that a small hand-machine was used and held materally in position by a person in the left who was unable to see the candle, it was much admired,

ou transmis. Le photographe it est pass, a portecimement, ansi perfectionment, mais plint on transformation radicale du titiophono. Son objet n'est pas de transporter le son des as source à mon distance, plate no moins dolgenée, mais de l'envegistrer, de le chérier, comme fait d'une gistrer, de le chérier, comme fait d'une iatives faites pour perfectionner le télé-phone de M. Graham Bell, principalement Jans le hut d'y renforcer le son réllèchi mago la plaque photographique, pour le cproduire, à la volonté de l'opérateur, lans une heure, demain, dans dix ans,

Nous avons dit un mot des diver-

nier, est un tubo courbó, à l'extrémité du- | or queil i y a un entomorie dans lequel on | peur ente. Au hout du récepteur, il y a uno duffettere se deas pouces environ de diametre fernée par un diephregeno en disque mètellique extrémenent mince, qui vibre p

account process, and the control of

a do no sais si j'oi bien fait comprendro
in principe de cel appareil ornegisteur;
il faut le considerer comme une vestiable
impression, durable et immrable, de nost
cecqui peut sombier le plus difficile à fixer
de la voix. Il no reste plus qu'à copyliquer comment cette impression peut être utilisée pour reproduire les mêmes sons que coux qui 1'ont produite. C'est ce qui se fait dans to troisième appareit, dans lo trans-metteur.

ont été légers, elles seront plus légères ; là pointe vague l'inéaire tracée par l'aiguille dans l'étain sora l'image fidèle des vagues

Tappenell transmetteur; probammene exac-tement in a mine course age one field for Tai-guille du highingame réception; La pointe qui de ul highingame réception; La pointe d'étres sirvix ils point mondiale qui se d'étres d'est le ligit dit vitera et recon-mence, dans la mentant production se monvements qui so sont imprifiels sur la reconstruit de sont imprifiels sur la reconstruit de sont imprifiels sur la reconstruit de la communiquerent . Des vitrations se communiquerent mohir reconverte en papier. Doeant ce dia-pluragino en papier est un liger resont en acter veriteta el termino par une agiullo qui resencib e Acid el un inpangino di recopient. Lo ressot est mis en rapport avec le diaplinague en papier du tran-metter, au noyea d'un ill de sole conve-niblement tendu. « Cet appareil est placé devant le cylin-dre du récepteur. Les choses sont dispo-sées de telle manière que l'aiguille de « Il faut se figurer un tambour conique métalliqueavec la grande extrémité ouverte et la petife extrémité de deux pouces de diad'horlogerie, d'un mouvement de rotation, en même temps que il un mouvement de transleiren horizontale, de talls sorte que l'itairille reste toujours engagée dans la rainure de l'enregièreur. Il n'est pas hiert difficile d'imaginer comment les dexen mou du diaplingeme vibrant, s'y appuie légère-ment. Le cylindre estainsi disposé que l'ai-guille porte dans la-rainure et quo le cylin-dre peut être animé, par un mouvement

forme de vis, est mouté sur un axe hori-contal, et l'aiguille de l'appareil récepteur, placée comme nous l'avons dit au

optinario de broance, qui a environ quatro pouces de longueure et quatro puoces de diamètre, et donel in surface porte des rai-rance en formo d'Holosi, ij a senviron diz de ces rainures helicolales par pouce, ce qui fail quarante pour la longueur eu-rière de optindre. La boraneur udala de colte rainure exi de 32 piods; si on l'Edu-« Le cylindre couvert de ces rainures, en continue horizontale, c'est là environ la distance qu'elle couvrisur une ligne lai

peut-être davantage et presque autant de fois que la fantaisie lui en preudra. Si l'espace est vaincu par le téléphone, comme il l'était déjà, d'une manière diffeet en vérité on se demande où l'homme s'arrêtera dans une pareille voie, s'il y persèvère : cela devient effrayant; — pas rente, par le télégraphe électrique, c'est le temps qui est vaincu par le phonographe; oour nous toutefois.

Le phonographe nous vient d'Amérique.
Il y a deux mois à peine, l'Europe ignorait
même qu'il pût être inventé. Après avoir renvova 'écho du God save the queen de manière à l'authousiasmer, après avoir répété satés un phrase, apprise à New-York e l'éproduitu vinge tour-tours du l itaversée, devaut la Société des mécaniciem Smerveillé l'Angletèrre, à qui il

Un'on venille lieur tenrier que nons seu controuren.

Un'on venille lieur tenrier que nons seu casagéones rien quanto mons parions de la manifestation polis par laquelo tenriera de instruente reconant l'informent que la i tolygraphists et la societé de plui-vieur de Loudres, et accoupil beacoup d'au-tre exploit du mémogener, le plunogra-ple passa la Mardie Lo II mars 1878, il ditti almis à « présenter ses compli-ments » il Arachiende des écences, sons le patronique de M. du Moncel.

sent successivement devant l'aiguille vi-brante, regoiveen que que sorte l'emprenne de la vibration, que les ondes sonores s'y dessiment, que les tracent une courbe formée de parties successivement ascen-

dantes et descondantes. Pour cela, on s'arrange pour que l'aiguille, en vibrant, exerce

au des Winsteines de communiqueron, au de diphingeme du pujere, et il en résolt-tere universéel étandes souvers tout à fail semihalisé à teiline qui tout été imprimées sur le faulté d'élant, out été imprimées sur fortille des louis de la majour surveillense, souré less muss du tambour d'unique, altéré persentant et ampréhis frainte, altéré persentant et ampréhis ment le souve médalique. Si le cylindre so ment places en agrandité s'ille ment places en grandité s'ille au condemnées en condemnées

vements de rotation et de l'amstation se condinent plura obtenir et effet.

« Que fami-il donc pour emegièrer les vibrations de l'aguilles II faut que le fond se de la rainnes, dont les diverses parties pas-sent successivement dorapt. L'aguille vi-

EST Mais comment cela? Quel shonographe présente se 'Académie des sciences. étrange instrument — Nous y voici.

raphe se compose, comme le téléphone, d'un appareil récopteur et d'un transmetteur, entre lesquels so trouve l'appareil enregistreur, l'àme de l'instrurécepteur, dit un confrères, M. A. V. nent. « L'appareil 10s plus éminents e Le phonogr

and in transcattors come to action the incident of actions the control of a control of a control of a control of a control of a control of a control of a control of a control of a control of a control of a control of a control of a control of a control of a post in a control of

 Quand le egilindre a archevé sa course, toutes le grancies promotes dants le réceptures sont imprimées dans la longue rature bélicotidale; cullo-ci a regu una sorio de gravue na autivillo, et les moindres imprimentes dans de moindres infectores de celle gravuer e out. Lux rimportes de les gravuers e out. Lux rimportes de les gravuers e out. Lux rimportes de les gravuers e out. Lux rimportes de les gravuers e out. Lux rimportes de les gravuers e out. Lux rimportes de les gravuers e out. Lux rimportes de les gravuers e out. Lux rimportes de les gravuers e out. Lux rimportes de les gravuers e out. Lux rimportes de les gravuers en les gravuers e ns de cette gravur e ont leur impor-puisqu'elles sont la trace perma-d'une onde sonore. Si les zons ont été les marques seront profondes; s'ils

une l'egère pression sur une feuille mines d'étair evel penille mine d'étair evel feuille mine et gilindre est indisatique, elle reșoil musache d'impression, chaque oscillation de l'ài- figuille protuit un creux, une sorte de pe- vite valide.

M. Edison; on comprend que le phono-graphe est un instrument bien autrement délicat que le téléphone; il doit être con-struit avec la précision d'une moutre; il faut que le mariage entre le mouvement vibratoire des aiguilles soit du récepteur,

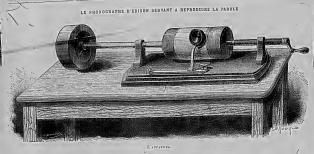


ted bell glass, G, closed with a ted boil glass, G, clored with a ro platinus wires provided at . If O, of the same metal. It is T, open at both codes, and fixed mouth of a test glass, E. Two e connected with the platinum bluding screws. The bell glass, lated with one-tenth of its vol-bis mixture be now decomposed Bunses better of 50 elements. Bunsen bettery of 50 elements, ser very rapidly; and when the gas, the mixture will detonate to take fire. This experiment is to take fire. This experiment is ger whatever; the recomposition is takes place immediately, and treat. It is necessary that this save a certain tension; the phe-y with a lattery of 30 elements, swith a lattery of 30 chromests, produced when the 30 chemonis up the complement are added. I a detenmine three will be observed to the state of the nil recomposed above. A weaker

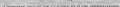
are due to the polarization of h electrodes of various metals.

ing Voltameter. nt, due to M. Bertin, is but little it, due to M. Hertin, is but little interesting, inasmuch as it puts sem connected with the polariza-ways take place under different sparatus, represented in the em-

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L'OPÉRATEUR PAISANT RÉPÉTER PAR L'APPAREIL LES PABOLES GRAVÉES SUR LE CLICUÉ.

expériences les plus bizarres, un peu pour s'assurer que les effets qu'il produisait n'étaient dus à aucune supercherie de l'opéraleur, car nous devons avouer que celui-ci fut quelque temps soupçonné de ventriloquie. C'est ainsi que la Société d'encouragement, dans sa séance du 22 mars 1878, a eu le spectacle des expériences suivantes, exécutées avec tout le succès désirable.

L'opérateur a cliché un solfége qui a été rendu avec le plus grand succès par l'instrument. Puis il a accéléré la vitesse de rotation du cylindre. Toutes les notes ayant été rendues plus aigues, la loi des intervalles musicaux n'a point été con-servée, et cette seconde fois le phonographe a chanté faux.

Après avoir cliché une phrase française, l'opérateur a fait repasser la trace de la

On s'est livré sur le phonographe aux | même manière que s'il voulait faire parler | chanter en même temps deux artistes dans le phonograplie, mais en même temps il a prononcé une plirase anglaise dans son cornet; ceci fait, il a tourné la manivelle, et le tracé complet a défilé. Alors toutes les personnes qui se trouvaient dans la salle des séances ont pu entendre un mélange des deux phrases. En s'approchant de l'appareil, un auditeur attentif pouvait suivre la phrase française, tandis qu'un autre suivait la phrase anglaise.

On n'en finirait pas si l'on voulait citer toutes les expériences fantaisistes dont le phonographe a été l'objet. Ainsi, en faisant opérer en sens inverse la pointe traçante sur le cliclié, on s'est amusé à produire l'étonnante cacophonie de mots prononcés à rébours. A la Société de physique de Londres, on avait déjà fait une expérience beaucoup plus intéressante ; on avait obteau un duo parfait en faisant

un cornet différent, les deux cornets agissant sur la même pointe traçante.

L'inventeur du phonographe est un jeune homme de moins de trente ans, M. Thomas E .- Edison, de Mantow Park, dans l'État de New-Jersey. Electricien de l'Union télégraphique de l'ouest des États-Unis, il n'en est pas à son coup d'essai en fait d'inventions, car il a déjà pris soixunte-sept brevets. A l'Exposition de Paris, M. Edison compte présenter un in-strument perfectionné, dont la construction est à peine achevée, lequel reproduirait le timbre de la voix avec une fidélité qui n'avait pas été atteinte jusqu'ici:

A. B.

Le gérant z.A. Bitano. ...

Sceaux. -- Imp. CRAPAIRS of FILE.

BHG

continue place emps et de la même re du diaphragme. C dait sur une ligne emps qui est vaincu par le phonographe; t en vérité on se demande où l'homme

d'un d'horlogerie, d'un eu même temps q Il y a deux mois à peine, l'Europe ignorait même qu'il pût être inventé. Après avoir émerveillé l'Angletérre, à qui il renvoya ್ ಕ

Le phonographe nous vient d'Amérique.

our nous toutefois.

l'écho du God sace the queen de manibi à l'enthousismer, après avoir répelé métère uve phrere, apprèse à New-York e réproduite vinet (bis dans, le cours de l

où l'homme

s'ii

arrelera dans une pareille voie, s' arrelera dans une pareille voie, s' ersèvère : cela devient effrayant; —

on disque r, il y diron de avec une grande facilité.

« Au centre de ce diaphragme mince, mètre fermée par un dieur métallique extrèmement

damakte, et dont ik surface jotte det rai-nures en forme i Helder, il y a environ ik; de ces rainures telécotelus par pouco, e ce qui fili quarante pour la lougueur cur-tice de cylinire. La longueur tolside de cette rainure est de 43 pieds; si on l'éter-20nur une table et placé juste en face de conregistreur. Ce second appareil est un couvrie manière que le co. Cet appareil est pa dacé juste en face face quatre pouces une aiguille d'acier qui se meut en cylindre de bronze, qui a environ pouces de longueur et qualre pou distance qu'elle est là environ la

ation, du diaphragme vibrant, s'y appuie 'legère-ment. Le cylindre estainsi disposé que l'ai-guille porte dans la rainure et que le cylin-" Le cylindre couvert de ces rainures, en forme de vis, est monté sur un axe hori-zontal, et l'aiguille de l'appareil récepteur, acée comme hous l'avons dit au centre dre peut être animé, par un mouvem

ne sais si j'ai bien je.

cequi pessivi per la pius difficile à fixer de la voix. Il no reste plus qu'à expliquer comment cette impression peut érroulisée pour reproduire les mêmes sons que coux qui l'ont produire. C'est co qui se fait et immuable, de tout dans le considerer warreil. lans le troisième appareil, impression, durable faut le . =

« Il faut se figurer un tambour coniquo métalliqueavec la grande extrémitéouverte Devant ce diaer est un léger ressort en acier vertical et terminé par une aiguille du diaphragme du du transde soie conveet la petite extrémité de deux pouces de diaen metteur, au moyen d'un fil de soie nablement tendu, est mis mètre recouverte en papier. ressemble à celle d epteur. Le ressort es phragme en pap

ę guille du diaphragme récepteur. La pointe d'acier suivra la pointe ondulée qui se déroule devant elle; eile vibrera et recom-« Cet appareil est placé devant le cylinappareil transmetteur recommence exactement la même course que celle de l'ai-Ire du récepteur. Les choses sont dispoées de telle manière que l'aiguille

EDISON ECLIPSED.

EDHANY IGA-FEPELI.

A Hastine Investigation and the Transmission assumed—the Montage of Transmission assumed—the Montage of Transmission assumed—the Montage of the Investigation

is belief to with much it that it does not be not be present what it is litterer must have a peaker, white the litterer must have a possible to prove the present of the constant in the present present the present present the present present present the present p

servoin phenomenon of a different nature, but more the less curious. The vaster, which all fits less rever yeary polyly to seem stillimeters below the platinum pites, all accreatepy, in applie of the distinguispense of goal partial particular to the property of the prop

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A Detonating Voltameter.

tion of electroites which niways take place under different conditions. The simple apparatus, represented in the en-

graving, consists of an inverted bell glass, O, closed with a cork, through which pass two platinum wires provided at their ends with broad plates, If O, of the same metal. It is

apported by a glass tube, T, open at both ends, and fixed

in the cork which closes the mouth of a test glass, E. Two wires from the batteries are connected with the platinum wires by means of ordinary binding screws. The bell glass, G, is filled with water activated with one-tenth of its vol-

ume of sulphuric acid. If this mixture be now decomposed ume of sulphutic acid. If this mixture be now decomposed by a strong current from a Bussen buttery of 20 elements, the water will be seen to bover very rapidly; and when the bell glass is almost full of gan, the nixture will defonate, pontancesely, and he seen to take fire. This experiment is not attended with any diagone whater; the recomposition of the products of electrolyad takes place immediately, and during the pussage of the current. It is necessary that this

polarization current should have a certain tension; the pho-nomenon does not take place with a luttery of 30 elements,

nomenon does not take place with a tuttery of observations but is at once spontaneously produced when the 20 elements that are necessary to make up the comploment are added. With 00 elements, instead of a detonation there will be observed a phenomenon of a different nature, but none the less

The following experiment, due to M. Bertie, is but little known, yet is exceedingly interesting, insamuch as it puts on evidence certain phenomena connected with the polariza-

current, of 30 elements, decomposes the whole; current, of 40 elements, decompless the wholez.

These curious phenomens are due to the polarization of the electrodes and not to the establisher of the phalmam, for they may be obtained with electrodes of various metals.

un mot des diverses Nous avons dit

representation de la constitución de la constitución de la constitución de la constitución de la constitución de la constitución de la constitución de la constitución de la factación de la factación de la factación de la constitución de la constitución de la factación d on transmis. Le phonographe n'est pas-à proprement dire, un perfectionnement, mais plutôt une transformation radicale du téléphone. Son objet n'est pas de trans-porter le son de sa source à une distance plus ou moins éloignée, mais de l'enre-gistrer, de le céléber, comme fait d'une Bell, principalen arcer le son réfle de M.

Ponneretga ben 29. Auguft 1878.

Edison's Phonograph.

— ABorms, 7. Septi. Wir wünichen bei ben beitgen Einwohnern bas Jutereffe sir ein Justicustum gu erwecken, bas seit einiger Zeit viel von fich reben gemacht und bie allgemeine Aufmertjamfeit uch reven gemacht und die augemeine Aufmertfanteit auf fich gelentt hat. Es in bas die vielgenannte Erfurbung des Kunertlaners Stifon, der Phonograph, der gegenwärtig in Worret's Ctabilifement nur noch die zum Mantag aufgestellt ift u. bort burch herrn Sprenger wioniag augertellt ift n. bort burch herrn Sprenger erkauter wird. Wein auch bie Erfindung des Tele-phon's voraus ging, gleichiam die Miniter ber Jore Chilon's war, fo ift boch die Confiruction bes Monograph's bei einer wunderboren Einjachtt bas. Bert eines augerft flar bentenben Rowfes unb eine Rierbe bes menichlichen Erfindungegeiftes. Der Gebante, ber in bem Phonograph bargeftellt ift, ift wohl is allgemein befannt, bag, wir uns nicht barüber auszufprechen nothig haben. Heber bie Conftruction felbft aber unterrichtet man fich am beiten burd Aufdauung. Darum modten mir bem Bublifum fehr auempiehlen, bie Belegenheit biefes Suftrument ju ieben, nicht vorüber geben gulaffen.

ben und beobachtenben Denfchen wirb nicht leicht ein hoherer Benug bereitet, ale wenn er Gelegenheit hat, gogerer Benut vereitet, als wenn er Beitgenget hat, eine Spoche machende Erfindung in ihrer Ammendung But iefen und gur beschaften. Und eine folche ist ohne Bweifel, des Amerikaners Ebison Ahonograph, troft Stabili naus ic. fam unter beutlicher Ausfprache unb bag man tin Bhonograph unters Sophwiftellt, um bie Rlatigereien ber Dienstboten und Raffeeichwestern nach iliter Entfernung belaufden gu tonnen, ift's noch nam inter entigerung veinigen ju tonien, jus noch inich ind wirb auch nicht fommen, boch zu einem böcht huhlichen Apparat bei den Elfenbajnen und Schlegreiben, dabon ill man nicht fehr weit nicht entsern. Inneren geber der weit nicht entsern. Inneren und der der betreich ein den gleberferitt. Immerfin wird der Pefind in dem niederitt. Immer Abnograph aufgestellt ist, ein flogiender, im dem geschaft ein der flesche bei der Bonograph aufgestellt ist, ein flogiender, flest und bei der kird der Erindung ihr Necht imberfahten lassen.

Reuftabt, 28. Mug. (Ebifon's Phonograph.).
Befdichte bon bem Ei bes Columbus ift uralt Die Geichichte von dem Err des Commons, 211 "unat-und befeit doch eing "mer, weit gläckfichernelfe gum Helt des Meinfewerichtlichtes, sie fich sortwaßerend wie-derhotz und gemiale Menschen gläckliche Gebanken saden. Die Resultate dersetzen sind ofts sie unendich einlach, boß jeber fich fragt, warum haft bu bas nicht aud erfunden, und warum ift es nicht fdon bor unbentlichen Beiten erfunben morben 2. In gleichem Fall befinder mar ich gegenker-dem Boongraphen, ber fo Bunderbares leiftet, daß man es vor Augen noch nicht für embild spielten hatte, und daß der Abporat lo außererbarilich einfach, daß man ich faß der Abporat lo außererbarilich einfach, daß man ich soß barüber ergern isnnte, wenn nicht die Bewunderung abermoge. Roch ift, ber Befuch bei frn. Sprenger nur ein fehr maßiger geweien, und boch ift es fich jeber gebildete und bentenbe Menich fetbit foulbig, fich mit bem Wefen ber winbertaren Erichelnung betaunt gu machen. Da fr. Sprenger noch einen Tog fanger bier berweilt, fo moge boch feber biefe Gelegenbeit benühen, feine Krantniffegu erweitern, benn fcmer-ich burfte fie fich fobalb wieber bitten.
Eb en toben, 25. Aug. Wie bie "Gegenwort

Sevenature Dicterior Limit—For the fullpoor of admirilar lighting, Mexica. Barnet and Four comparison of systems of the control of the contro

Explanation of the Microphone.

The resistance which a conductor of electricity offers to the current passing through it is variable; it depends, to a certain extent, on changes of temperature, and it has recently been discovered that some substances are affected in this way by light. This is the race with selenium, one of the elements belonging to the sulphur group, and therefore a metalloid, but which has some metallic properties, and is a good conductor for electricity, but which is so strongly affected by light that its condox Hillity for electric currents varies n proportion to the intensity of the rays of light to which it is submitted, and therefore has been proposed as a medium for photometric purposes.

Still more recently William Thustyson, and other physicists, have discovered that the conductibility, or rather the electric resistance of a wire, will be affected by being placed in a condition of strain, hence Prof. Hurber concluded that if a stretched wire is vibrated sound, the vibrations must cause differences of strain, which, in their turn, will produce variations in electrical resistance and vary the conductibility of the wire. Consequently, when such a wire is to transmit the current of a constant battery of which the strength has a proper relation to the expectly of the wire, this current will fluctuate in each a manner, that, if passed through the cold of an ordinary Bell telephone, the ductuations of the current will be transformed into sound, and may be perceived by the ear. It should be remembered in this respect that the telephone is one of the most sensitive contrivances to eletect the existence of the most minute fluctuations of electric cur-

But the really a-tonishin- features of this trans formation of sound into electric currents, and re-conversion of electric currents into sound, is that the intensity of the original sound may in this way be enor. money in the original sound so that if the original sound acting the stretched conducting wire into vibration is so soft as to be utterly beyond the capacity of the human car to be heard, the fluctuations preduced in the current passing through this wire will so affect the telephone as to cause an audible vibration in the telephone plate.

the of the conditions to the success of the experi ment, is that the wire in the neighborhood of which the sound is produced, should be st. stehed to a proper tension; and it has been reported that ordinary sounds may be intensified in this way so as to be heard with powerful latersity in the telephone at a distance of many miles, while the feeblest sounds, such as the step of a fly, could be plainly made perceptible.

It will thus be seen that this instrument promises to become for the car what the interescope is for the eye, hence the very proper name of Microphone.

Recent Electric and Acoustic Inventions No. 4

Is the phonograph and in the telephone, a thin metal disk is thrown into a state of vibration by the human vitice. In order to make such vibrations vibility, Mr.; Stelley Taylor takes advantage of the carreing tenning of a film of soap, like that of a torq-behole. This

new normaling in the control of the of victors super-durin, right is not because affecting this is rother will know in his confidencing this is rother than the said known in the confidencing the

figures, so non promote experiments, the manuscript of the place of place of place of place of place of place of place of place of place of place or conference which be place of place of servers over the surface of the spanding body servers over the surface of the spanding body to the place of the place of the place of the place of the place of the place of place of the place of the place of place of the place of place of the place of place of the place of place of the place of place

Edison continued: The invention consists simply of two small silver

troughs which are hung under the

eyes; these enteh the prespiration as it

falls from the brow. The silver troughs

have very delicately adjusted false bot-

toms, under which is conrealed the

great secret of the invention. The

weight of the liquid falling into the

receivers nets on the extremely minute

but powerful apparatus underneath.

and the result is that a fine spray, del-

icately perfumed, is thrown out in all

directions, enveloping the face in a

most exquisite vapor, cooling and re-

freshing. The wonderful part of the

idea is that the justrument is auto-

matie in its action. When the tem-

perature of the face is reduced about

sixty degrees and the blood in danger

of freezing, the invention ceases to

work and the wearer calmly passes

through all stuges of heat until the

perspiration pours from him again,

when the instrument repeals its opera-

tion: Thus you see there is a contin-

unl variety, the wearer experiencing

all the a-usations of the changeful sea-

Edison took a long breath and

scarched for a handkerchief, and the

other said: 'Wonderful! truly won-

derful I and, as contemplation of the

immensity of the idea brought pearls

th their foreheads, they deroutly wish-

68 Edison had brought several of his

perspiraphones with him.

Just then the train approached a

station and the man who had been sitting in the background writing rushed

to the door with a large-scaled package

which he threw to the mail agent

Who is that excited individual?

'Oh, that's my traveling patent at-

torney. He's just mailed a cavact for the Patent Cixer, Washington. He

goes with me everywhere, for I don't

want any more discussion about prior-

standing at the stations

Edison was asked.

ity of invention."

The train sped on

sons from summer to winter."

said one of the wise men who was of a mathematical turn, and pulling out a note book he jotted it down. "What is it this time t' asked the

an idea!"

EDISON WHIPS "OLD SOL"

It was on the railroad train freight

'ed with humanity and scientists, on

their way to Colorado to witness the

total eclipse of the sun which took

place on July 29th. Professor Edison

and a number of other unfathomable

others, 'Is it a 'phone,' a 'graph,' a 'scope,' a 'meter' or a 'pile.'

'Oh, it's only a 'phone' this time.' answered the great electrician.

"The nineteenth 'phone," said the man with the note book, consulting a back page where he had the different kinds of inventions marked off in 'tallies.

'Give it a front name,' cried out the others, 'and tell us all about it.'

Edison passed his hand over his brow and rubbed his nose to draw his mind from several thousand ideas and concentrate it on the latest, and prepared to obey.

A sharp looking man, not having the air of a scientist, who sat in the rear of the party, listened engerly, and, drawing out a package of paper and a pocket inkstand, he took dewn all that fell from the professor's lips

'Well, gentlemen,' said Edison, 'Pll tell you about this new idea. You see I just now noticed our fat friend there prespiring freely and seeming not to enjoy it; the thought struck me that I could invent a pre-piraphone which would make warm weather a comfort

and prespiration a luxury.' The man in the rear of the party." scribbled away, evidently not losing a word that was said.

Scientific Dews,

beholders. In describing it, a popular writer, referring to the splendor of the new "Avenue de l'Opera," as seen from the balcony of the Grand Opera, says: "The effect is magnificent, drividgers, 1991. "The effect is magnificant and this measured to be compared to able under the compared to th tent there exists nothing in this

TELEPHONIC ALLEM. - A new telephonic slarm for attracting attention at distant stations of a telephonic circuit has recently been designed. It is based upon the fact that when a voltate current is either made or broken a click is heard in a telephone. The instrument consists of a brass wheel centered to an upright bracket attached to a stand, capable of being rotated. Against the edge of this wheel, which is milled, a light metallic spring presses, so that when the wheel is turned a vibratery carrent is produced, both the spring and wheel being included in the circuit of a battery and telephone. In order to prevent the battery ever being left by mistake in connection with the telephone line, the instrument is provided with an ordinary electric bell-push or transmitting key, the connections of which are so arranged that the battery and wheel are cut out of the circuit unless the button is pressed as in the act of ringing an electric bell. In order to call attention at a dislant station, all that is necessary, therefore, is to press

shown the button with the left hand and give a turn to the wheel with the right. The advantage of this instrument is that it dispenses with the use of a signal bell or any special signalling wire, the telephone itself being made the sounding apparatus.

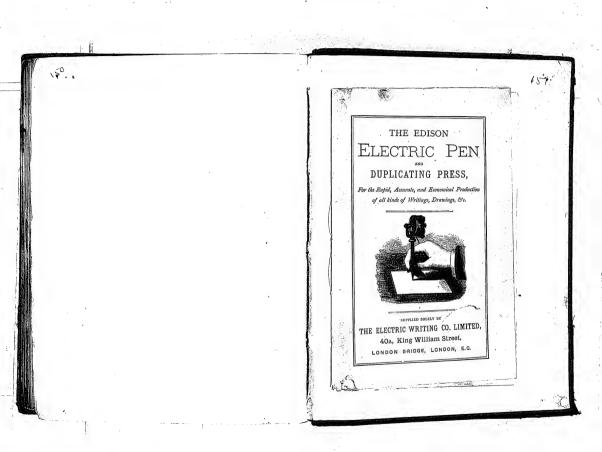
ulder was the same of the contract of the cont Scientific Hours Oct 1 Alternating Currents for Electric Lamps.

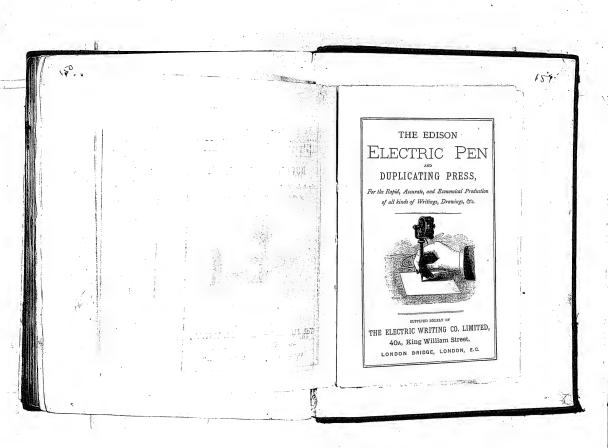
Attenuating Currents for Electric Language Ir spopers than a more important in the control of th

menture accounts in a contract of the current result in a reversal that direction of the current result in a reversal contract of the current result in a reversal contract of the current result in a reversal contract of the current result in a reversal result r The reversal of the direction of the current

shas the other will be necessary when this im-provement is night entry any that the electric. In conclusion, we may say that the electric in conclusion, we may propose to both in this country and afformal, proposes both in this shore is seems to have much in the contract of shore in the country and afformation of the contract shore is seems to have much the in it is stated, where is seems to have much the in it is stated, doubled the tilmuminating power of his electric randle by the substitution of a plate of plants from the contract of the contract of the contract cannot be contracted in the contract of the contract formetry and between the catenos. The effect of these lights, as employed at the Grand of personal position, in the admission of again.

PITTSBURGH,





THE EDISON ELECTRIC PEN

DUPLICATING PRESS.

THERE has been a long-felt want among business men, railway officials, lawyers, and others, for some means by which numerous copies of autographic trade letters, circulars, &c., could be made from a single writing. Especially is this desirable in issuing price lists, circulars, letters, postal cards, freight tariffs, time cards, music, drawings, &c. This can now be done cheaply, and at the same time expeditiously, with tho

ELECTRIC WRITING AND COPYING MACHINE

a combination of apparatus which produces rouths similar to those obtained by Hilogorpich, but without the compilated and expessive methods of the man and the compilation of the compil

minutes.

It is imprecations can be taken on any kind of paper, from delicate tissue to the finest note.

It is the only read, practical, and accurate method of proventing creams in the production of daplicates, no other system can consuper with 14, for an analy copies as are desired can be taken for the more cost of the paper.

compare with 1s, for an animy copies as no desired can be tracen for since of the survivage the important industry of the proving the apparatus, including into, 6e, yill not record one pears per week. It is unriving the proving the pr

The Post Office Department of America has decided that all matter written with the Electric Fen goes as third-class post matter—"one hullpenny per ounce or fraction thereof." halfpenny per ounce or fraction thereof."
The simplicity of the whole apparatus, and the results obtained by it, entitle it to a place amongst the really useful inventions of the age.

With this system, upwards of two hundred copies of an ordinary circular, price list, &c., can be written, printed, and posted within an

As almost anything that can be done with an ordinary pen may be done by the use of this apparatus, it follows that the Electric Pen is adanted to the uses of nearly all trades and professions.

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it is invaluable, as it allows the Circular to be kept open until after business hours, and a few moments before the closing of the post. For

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it has this great advantage—that it can be prepared by the principal of the house, thus endowing it with an air of authority, and avoiding the publicity of the printing office.

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CATALOGUES.

where but few copies are needed, the printers cannot compete with it.

PRINTERS

can introduce a new and popular feature into their business, and will find it especially valuable in executing autograph trade circulars, letters, price late, postal carde, legd papers, maney, plans, music, &c., valued disturbing their ordinary presses, the work being preferred to either pratting or lithography, and much cheaper, quickor, and botter.

NEWSPAPERS.

For country newspapers, or these not having an extended circula-tion, it can be used in a variety of ways; more especially for posting lists, notices to subscribers, delinquent agents, clubs, &c.

ADVERTISING.

As a means for advertising it cannot be too highly appreciated.

Any business, whether small or extensive, can be increased by judicious advertising, and this admirable asystem of astopraphie letters and circulars affords mechanic, tradessmon, manufacturers and others, a ready, cheap, and effective means of frequent communication with their customers and cleans.

GENERAL SALESMEN

will find it of the utmost value in their business, saving them both time and money.

I AWYER'S BRIEFS, CONTRACTS, AND LEGAL DOCUMENTS

of every description can be expeditionally and economically produced. It is already largely used by Innyers for that purpose. The errors of copying are thereby "middle. It is the only practical method of preventing error in the furplication of."

FREIGHT TARIFFS, MANIFESTS, TIME TABLES, &c.,

which has any degree of practicability.

LABELS, LETTER AND BILL HEADS, ENVELOPES.

and all other varieties of small printing may be done in an artistic style, according to the expertness of the writer, thereby effecting great economy in printing bills.

MAPS

of various kinds, where outlines are only necessary, such as real estate maps for showing situation of lots, &c., of aimset any size, are easily produced in any number.



ARCHITECTURAL AND MECHANICAL DRAWINGS

are produced with facility, and tracing from drawings, sketches, designs, &c., proviously prepared in ink, are made by merely passing the Meteric Incover the list marks. While it is not claimed that the flow shading of lithographic engarving can be produced with the pen in the hands of an inexpert, it is claimed that for all practical purposes it will produce sketches and pictures by coulines, which is all that will generally be found as

MUSIC.

By its aid the composer and arranger of music is enabled to duplicate music of the most complicated character, now so largely done by hand, owing to the cost of reproduction by other processes.

INSURANCE FIRMS

having the agencies of a number of companies frequently require a awarig uso agencies of a number of companies frequently require a dozon capies of the same policy rando out on the forms of the different dozon capies of the same policy rando out on the forms of the different saving the capital properties of the capital capital capital capital saving the exponent capital capital capital capital capital capital printing of any firm or company generally, it would be found invaluable. Or

COPY BOOKS, PRESS REPORTS, FINANCIAL EXHIBITS.

and every conceivable variety of printing, it is exceedingly useful.

COLLEGES, SCHOOLS, CHURCHES,

To professors of colleges, and principals of schools, and clergymen, To professors of colleges, and principals of reshoots, and corpy, resh is an invaluable assistant in creeting cranimation papers, topics, reports, maps, pastoral letters, circulars, and all leads of correspondance where many duplicates are required. It prints any kind matter, whether written in Baglish, Arabie, Chinese, or any other barmans.

BANKS

would find it almost indispensable, and in the preparation of blanks alone will save its trilling cost in a few weeks. It could be used to the greatest advantage in printing the form of endorsement on drufts and alonem. and choques.

In fact, in all departments of business, the sciences, arts, education, &c., it would be a valuable adjunct, saving both time and

Like the gun, sewing machine, &c., the parts of this apparatus are INTERCHANGEABLE,

and can be supplied upon application, thus rendering it unnecessary, in case of socident, to send the whole apparatus a long distance to be repaired.

DIRECTIONS.

Accompanying each pon are full instructions sent.

DESCRIPTION OF THE ELECTRIC PEN, &c.

Amongs the numerous scientific discourter which have lacky been inleved to the requirements of the commercial world, for her neglecture of the commercial world, for her strated so much stated not at the Edischier Far, the investment of that celebrated electrician, Mr. 7. A. Zessaw (white the little-graphy without the Yessay graphy), which grounds consecuted theoretis. The Electric the coars of the property of the commercial contraction of the property of the Now, the "ministal instruments to this usuful and largestous inventions, the object of the control of the contr

can punt mean at the rate of 300 or 400 an hour.

The simplicity of the apparatus, there being nothing to get out of order, the rapidity with which copies are displicated, and the greet:
concern in their production, entitle it to a prominent position amongst

the most useful inventions of the age. Any ordinary person can with the most useful inventions of the age. Any ordinary person can with facility use the Pen either for writing or drawings, and is enabled to produce results according to his ability. Merchants, brokers, solicitors, and dergymen have found its great boon; as a flock have the principals and either the production of the production of the production of the colleges, private and public companies, corporations and charitable and the production of t merchant, who has occasionally to issue oven a few scores of written communications, to sale examination papers, to publish notices, &c, would soor recup himself, and afterwards print at the cost of habour and paper. The pen has been calepted by many business firms, by some of the Government officer, religious societies, &c, and if aparet to the end of the year, the members of the Church Romidtical Society. saved by its use. saved by its use. The Process in operation daily at the Electric Writing The Pre scan be seen in operation daily at the Electric Writing Carlo Press and the Electric Writing Carlo Electric Losnos, E.C., where on, King Writing and Carlo Brocess may be inspected, which wall well instructed in the duplication of writings and drawings of all kinds, public notices and circular, &c. may expect to receive a notice (we are going to coin a new word) 'privately electrographed." ELECTRIC WRITING COMPANY, LIMITED. 40a, King William Street, London Bridge, E.C. Extract from "THE CLERGYMAN'S MAGAZINE." SCIENCE PERSUS ART. "There are probably few clergrume, or, indeed, any class of men vision wovel is of a public nature, who have not at some time withell have been dreined by overy man his own printer." Various pleas have been dreined by overy man his own printer, "Various pleas drawings, 6c; but nothing that we have yet seen such the term, massis, with the 'Elastrie Pen.' The pure consists of a tube should four inches with the 'Elastrie Pen.' The pure consists of a tube should four inches the printer of the printer of the printer of the printer of the issues the point of a medium of the printer of the second of a shall to the actio of a wheel uluced at the nor of the new consequence. The Electric Writing Company, in view of the great dauger which threatens the commercial community from the introduction of the liquid invented by Chicolombia the ballogical American forger, for the obligated materian forger, for the collectration and strength of the amounts written on choques, circular notes, (e.g., begr to call the serious attention of bankers and others or any company of the collectric angular districts of the serious strength of the serious strength of the serious control of the serious strength of the serio notes, e.e., beg to call the formula visible the use of the Electric region of instances in their monetary transactions.

The the employment of this most inguiness instances in the orientation of the employment of this most inguiness instances in the property of the employment of the most inguiness instances and ender power line institutes of the employment of the property of the employment of the property of the employment of the employmen page, of the sites and shape of a constate of a three about four inches insect the print of a newlet. This need his convented by of which assess the print of a newlet. This need his convented by a flow part of the post, which wheel, being connected by a flexible of the three prints of the print of the prints SPECIMEN OF STENCIL WRITTEN WITH THE PRISON PIECTRIC DEN

TESTIMONIALS.

From amongst a large number of Testimonials, emanating from various sources, testifying to the many and great advantages the Edison Electric Pen possesses over all other methods for the rapid and economical duplication of writings and drawings, &c., the following have been selected :-

> REDCLIFF STREET, BRISTOL June 26th, 1877.

Gontlemen,-The Electric Pen with which you supplied us works very fairly, and we have found it very useful. Yours faithfully.

(Signed) W. D. & H. O. WILLS, O.H.G. The Electric Writing Company, Limited, London.

COACH GOODS WARRIOTER.

136, Long Acre, London, W.C., June 26th, 1877.

Gentleman,—We have used the Electric Pen with perfect success time or to hair if from you, and produces nearly all our circular-success since we had if from you, and produces nearly all our circular-success in the plane of the beat as if for our forms applying for accounts in the plane of the beat as if the year of the practical application of science, It is a beautiful instance of the practical application of science, and we hearily commend it, both on account of its remarkable regently of construction and its general satisfy for business purposes.

(Signed) THOS. WHITTINGHAM & WILKIN, J.D. To the Electric Writing Company.

West Cumberland Iron and Stree Company Limited, Workington,

June 30th, 1877. Dear Sirs.—In reply to your favour of 25th inst., I beg to inform you that, so far as I have tried the Pon, it appears to work extremely well, and is very useful where a number of copies are required in a short time.

Yours truly, (Signed) G. J. SNELUS, General Manager. Mossra. The Electric Writing Company, Limited, 9a, New Broad Street, London, E.C.

July 11th, 1877.

I have tried the new Electric Pen for writing MS, printing and drawing, and consider it perfectly successful for all three purposes. For simplicity, corpelition, and cleaniness in working, it seems to me to be quite unrivalled, and they who, like myself, often require twenty or thirty copies of a paper of questions to formulae, &c., will save the cost of the machine in printer's bill soveral times over

11

CHARLES L. DODGSON, Mathematical Lecturer of Ch. Ch., Oxford.

> HERALD OFFICE, CARNARYON, June 26th, 1877.

The Electric Pon is giving us great satisfaction. It is one of our greatest favourites, and is a most valuable adjunct to our printing department.

J. EVANS & CO. (Signed)

149, Thou Street West, Sunderland, July 31st 1877.

July 214: 1977.

Dear Siry.—Having hid one of your Electric Pleas about three ments, we have pleasure in stating that it has now become almost extended to the control of t

I, Gresham Buildings, Baskighall Street, London, E.C., July 31st, 1877.

(Ignthemon.—We have used the Electric Pen for some mentals part, and it has in every way given us satisfaction. By its quit a resulted to issue 50 to 100 circulars per locue at the cost of about 3d.

(Signed)

(Signed)

(Signed) G.
The Electric Writing Company, Limited,
9, New Broad Street, E.G.

BEAUMONT COLLEGE, OLD WINDSON, BERKS, TELEGRAPH OFFICE, ENGLEFIELD GREEN, 28th June, 1877.

Sir.—I have now for some mouths been using your Electric Per-petely constantly, and I find that it amore the parques of saving time is multiplying crassication papers consciling with. From this point of view it is an immense improvement on Ritography, point of view it is an immense improvement on Sir, yours, &c. (Signal).



6, BRIDGE STREET, SUNDERLAND, 26th June, 1877.

Dear Sirs.—The Electric Pen I bought from you some months ago has given early sulfatetion, and I find it most useful for my monthly adopted the control of t

The Electric Writing Company.

18, Sidney Street, Cambridge, August 3rd, 1877.

Gentlemen,—I have pleasure in stating that the Electric Pen which I lought of you some time since has given me great satisfaction. It is invaluable in all businesses where speedy issues of printed matter are required.

Yours truly, all J. ODELL VINTER. (Signed)
Mosers. The Electric Writing Company.

NELSON STREET, BRISTOL,

August 1st, 1877. Dear Sir,—In reply to your letter of inquiry, we have much pleasure in stating that the Electric Pen proves to be of very great service to us, fully answering our expectations.

Yours truly, H. H. & S. BUDGETT & CO., E.H. (Signed) H. H. & S. I Mr. J. R. McGullocu, 9, New Broad Street, London, E.C.

THE GREEN, TOTTENHAM, LONDON, July 31st, 1877.

Dars Sir,—In compliance with your request as reguests the Electric Pen. I beg to anten that it not only gives perfect satisfaction, but also mushes to be considered the every other copying machine—the larger the number to be copied to every other copying machine—the larger the most useful lavontions of modern days, and ought to be found in avery expectable homes to business and all the Government offices, for it and the second of the copying the

Believo me to be, dear Sir, Yours very truly, M. LASERON, M.D., Director. Universal Tutorial Association, Berner's Chambers 70 Berner's ST LONDON.W. august 29 # 1877.

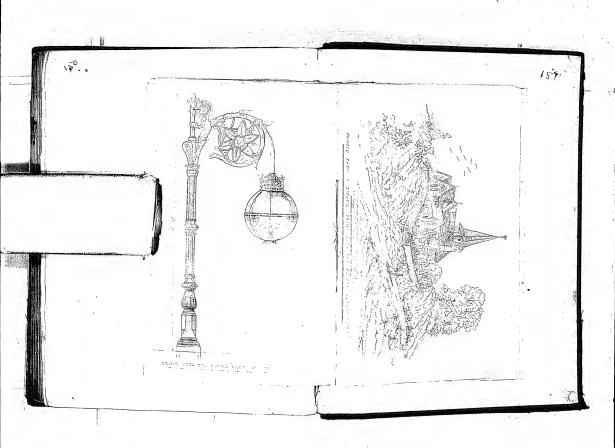
To the Sixonagor, Electric History & Tamitant. 200 Meny, 1804 home St. E. E.

Show his to ter son senting you is Technology to as lesting form of your blacking In the canney communications, and blacking South of full ? very titele head This Solmon on down I the nevert as that I comsport with great confidenceing respect of its soldier in all I trees of Suriness subview or warridge of Brandant Voller rates are in constant & sommounds segue ition - The some braitself & the whole some to the producing carries with six the ands ments in fort se send dellate any mounder of may state commerces at mille providing and without somety my provides instruction or hinds

tomer — Arms etneticostlyr. H.S. dosbardischDissiri, 14.8.11.5 F.R.C.S.

Contrar of Over Stoke to V Colleges," De

1. 1. mille the Course Clerkie Soul





THE

EDISON ELECTRIC PEN

wes solos

The most important invention of modern times . la simble in construction, Easily worked Rapid in action. Cleanly in use, Given clear and distinct impressions, EGONOMIGAL IN PRIGE

SURPASSES ALL OTHER METHODS OF DUPLICATION. Will Broduce thousands of perfect copies from one writing or drawing, at the rate of about three to four hundred berhous. Any ordinary penman can use at with facility. NO SPECIAL PAPER REQUIRED FOR PRINTING

Different coloured inke can be used. Any kind of design either Mechanical, Architectural, or otherwise can be specially produced. BOTH TIMELGABOUR SMOTHLY APECANTES OF

meet ITS USE. men Can be seen daily in operation at the offices of

-- the open Clerker Writing Co Limited

404 KIND WILLIAM ST LCHOOM BRODGE IS

PRICE CORDINARY SIZE 1 8.8.0.

STANLEY House, Milner Street, Chelsea, July 30th, 1877.

Sir. —I have found the Electric Pen very useful already, and consider that it will save me much expense, as my printer's bill is usually

Yours faithfully. (Signed) W. H. DALTON.

June 26th, 1877.

Dear Sir,—In reply to your inquiry, I have much pleasure in saying that your patent Electric Per is used frequently by this company both here and in Ghins, that it has proved very useful, and has given satisfaction in every respect.

Yours truly, ned) H. G. ERICHSEN, The Company's Representative in England.

The Secretary of the Electric Writing Company, Limited,

SANGUHAR HOUSE, 117, BROMPTON ROAD, July 31st, 1877.

Gentlemen,—The Pen is everything we expected; we shall have every pleasure and confidence in recommending it among our commercial acquaintances. We are, yours truly,

GRANT BROS. (Signed) To the Electric Pen Company.

Auction and Estate Offices, 9, New Broad Street, Landon, E.C., August 18th, 1877.

Having tested your Electric Pen, we have very great pleasure in strongly recommending it to all those who have occasion to send out a number of circulars or other notices, it being both simple in uso and speedy in result.

We have ourselves found it to be invaluable for producing particulars of properties, &c., and although only so recently in use by us, it has been a great saving of time and money.

Yours truly, DELL & MALBY.

OXENHAM'S AUCTION ROOMS 353 & 354, OXFORD STREET, LONDON, W.,

August 21st, 1877.

Dear Sir,—Wo have very much pleasure in bearing testimony to the utility of the Electric Pan. We find it exceedingly useful for sending out notices of sales, address overlapses to our regular eastomers, and many other purposes. We feel that the Pan we pursh chased of you some three months since has already repaid its cost twice over. We wish you all the secrees that the excellent invention

Yours faithfully. BROWN, SWINBURNE, & MORRELL. The Secretary Electric Pen Company.

18, OLD BURLINGTON STREET, LONDON, W.,

August 24th, 1877. Gentlemen,—I find your Electric Pen of great use in my office: my clork found no difficulty with it from the first. It certainly is a valuable adjunct in a solicitor's office.

Yours obediently, (Signed) THOS. A. G. POWELL. The Electric Writing Company, 9s, New Broad Street, E.C.

> University Tutorial Association, Berner's Chambers, 70, Berner's Street, London, W., August 28th, 1877.

Sir,—I have helitated in sending year a testimant in ext to deflect of your liketine let on the form of your liketine let on the form of your liketine let on the form of your liketine let on the form of your liketine let on the form of your liketine let on the form of your liketine let on the form of your liketine let on the form of your liketine let on the form of your liketine let o

I remain, yours obediently, (Signed) F. S. DE CARTERET BISSON, M.A., LL.D., F.R.G.S. Editor of "Our Schools and Colleges," &c.

To the Manager Electric Writing Company, Limited, 3a, New Broad Street, P.C.

BOILER, BRIDGE, AND ROOFING WORKS, Duntey, August 23rd, 1877.

Dear Sirs,-Enclosed please find cheque, value £8 11s., in payment of your account. of your account.

I am happy to inform you that the Electric Pen has, up to now, given
me perfect satisfaction, and numerous friends who have need him
operation are greatly pleased with it. The instruction of all not arrive
till some time after the Pen, but I found no difficulty in working it

Yours faithfully. SAMUEL WOODALL (Signed) & Messrs. The Electric Writing Co., Limited

THE VICARAGE, BLACKBURN.

Guillemen.—In answer to your note, I beg to state that I am a com-form the planet with the Electric Pen you not me. I have need it several and the planet with the Electric Pen you not me. I have need it several and admirably. For copying music it will prove note handly. For any circulars, &c., in which figures frequently occur, and for tabular lists or statistics, the Tow will prove in the hand of a neat writer most convenient.

Yours truly. HERBERT BIRCH. (Signed)
The Electric Writing Co., Limited,
9, New Broad Street, London, E.C.

> Western Union Telegraph Company, CENTRAL DIVISION, CHICAGO. May 21st, 1877.

Duer Sir.—I have been featilist with the Blettic Pau and Duplicating Press for the past two years. For originality it is one of the most marked invertions within any knowledge. Mechanically considered, It is elastically subject to the first quality of the work reported. It is elastically subject to the first quality of the work revoluced. Some of the specimes commonly preduced by expert with the Electric Pen are nearly as fine as experyelts engagering, read-under the property and of pages—1, 7,000 to 0,00—1s stemisling from a scendide point of view. The bettery sell with the Electric Pen only in the property of the present part of the present part of the present part of the present part of the present part of the page of the pag

The great advantage of being able to use a black ink, when preferred, in taking impressions from Electric Pen stenetls, which rannot be revoved by acids employed to remove ordinary take, should not be overloaded. The coloured aniling ink fades in the samight, or when not so looked. The coloured aniline ink fades in the sunlight, or when not so exposed will become dim with ordinary use, such as appare usually receive. It is important in securing duplicates of valuable documents to obtain copies which will be indelible, and I believe this can be done by using the Electric Pen and black ink.

Respectfully, O. H. SUMMERS. Electrician Cent. Div. W. U. Tel. Co.

Gro. H. Bliss, General Manager.

WAR DEPARTMENT. QUARTERMASTER-GENERAL'S OFFICE, WASHINGTON, D.C.

Wattisprox, D.C.

Der Si, —The Electic Pan has been in April 6th. 1877.
Aggest lett. It is commissed in time mat manay. When a few hundred copies are needed for a money. When a needed for an orded for successful pleased with it.

Wattisprox of the by meding the manuscript to a printing office and correcting proc. I am much pleased with it.

Very respectfully,

W. Th. Dannann, Pag.

W. H. Dannann, Pag.

EVER COTTAGE, THE GROVE, BLACKHEATH, S.F.,

EYEL COTTAGE, THE GROVE, BLACKHEATH, S.F.,
Sip.—In natwee to your sede of inquiry respecting the working of
the Electric Pen. I have pleasured inquiry respecting the torving or
satisfactory, and that Fenn strongly recommend it.
Feithfully yours,
I have been of the Church Homiletical Society.
To the Secretary of the Electric Widnig Company.

ROSEVILLE HOUSE.

Sir,—I cannot speak too highly of your truly splendid invention: I fand it invaluable in my school and other work.

I have made use for some interest or copying machines, including Zecato's Papprograph, all good in their way, but taking up more time than the Electric Pen, and often in mathematical papers or cash statements proving useless, through illegibility in a figure March 27th, 1878.

here and there.

The value of your invention is that the steed! is always perfect, and never fails to "come out" Properly. It is quicker done, is not see that part quiries less strangth in "printing of" than is not see that the property of the printing o

My duplicato correspondence, in addition to my school work, it a very large one, as I am storedary to our cricket, choral, croquet, to consider the control of the control of the consideration of the to our Sallor. If all other societies, begains being illusory Manager I have only had your pen about a month, and on looking over the old security which I always keep by me, I find I must have printed unarily eight thousand copies of various papers, list, circular, pre-sent the control of the control of the control of the control Vost are culties at libert to make on we gave make not this faction.

grammes, &c., during that time.

You are outle as liberty to make any me you please of this testimonia, and I hope my recommendation may be the means of introducing the Patous of, other gentlemen connected with education and public sections.

I am your truly.

V. H. DULLIN,

Principal of the Grammar School, The Electric Writing Company. Dartmouth.

ALL SAINTS' VICARAGE, DERBY.

March 26th, 1878. I have used the Electric Pen for some months and am much

astisfied with its work.

It is a most valuable help to the working of a parish.

SHOLTO D. C. DOUGLAS. To the Secretary of the Electric Writing Company.

55, Wood Street, and Philip Lane, London, E.C., March 27th, 1878.

Gentlemen, ... In reply to your favour of the 21st instant, as far as we have tried the Electric Pon, we find it very useful and convenient. Yours truly, For RYLANDS & SONS, LIMITED,

S. BARRATZ.

The Electric Writing Company, 40n, King William St.

VERE STREET AND OXFORD STREET, LONDON, W., March 25th, 1878.

Gentlemen,—We have laid the Electric Pen in almost daily use during the last three months, and have printed in the aggregate several themsand notice, forms, efectuary, etc., etc., etc., Both, Battery and Penderthell, which is a proper and the fine of the property of the property of the property of the We are Gentlemen. We are Gentlemen.

To The Electric Writing Company.

m name weether begreet that the

TAUNTON, March 25th, 1878.

Dear Sir,—In reply to your inquiry, we find the Electric Pen quite what it professes to be, and the work done by it to our satisfaction. It has already been a saving of time in our counting-house.

We are, yours truly, BLAKE & HATCHER.

CHAS. F. ABURROW, Esq.

16, MARK TANE, LONDON, E.C. March 25th, 1878.

Gentlemen,—In reply to your favour of 21st inst, we have used your Pen for the last six weeks in writing circulars, letters, &c., and it has given every satisfaction. It is the best invention for multiplying copies which we have seen. We are, Gentlemen, Your obedient servants.

JAMES GIBBS & CO.

Messrs. The Electric Writing Company, Limited, 40a, King William Street, E.C.

STEAM CONFECTIONERY WORKS,

Lewin's Mean, Bristol., March 23rd, 1878. Gostlomen, Wo have much pleasure in stating that the Electric Writing Machino we received from you last month answers our purpose admirably, and is in every way satisfactory. Yours truly, STANTON & CO.

The Electric Writing Company, Limited, 40n, King William Street, London, E.C.

The North Metropolitan Transways Co., 24, Finsbery Place, E.O., London, March 23rd, 1878.

Dear Sir,—In reply to your letter of 21st inst, I have to inform you that it is a standing regulation of this conpany not to give testimonials. I shall, however, be pleased to answer any questions that may be made to me by any one desirous of making use of the Materia-Pon.

Yours faithfully, J. P. MAPLES.

The Secretary Electric Writing Company, Limited, 40a, King William Street, E.C.

1, Palmerston Buildings, Bishopsgate Street, March 21st, 1878

Duer Sira,—This is to introduce March 21st, 1878

Duer Sira,—This is to introduce March 21st, 1878

The withshild Dee to bring before you. We bought one some time of the product of the product of the product of the product of the product of the product of the product of the product treaths.

We are although the product of the product

PATENT WHEEL WORKS, 42, NEWINGTON CAUSEWAY, March 8th, 1878.

Dear Sir,—We have the pleasure to inform you that we have tested the Electric Pen and are well satisfied with it. We find it very usoful.

We are, yours truly.

E. H. BAYLEY & CO.

Mr. Stead.

5. LIME STREET SQUARE, E.C. Gontlemen,—In reply to your inquiry repeting the Electric Pen apparatus purchased from you some time ago, we beg to say that we find the same exceedingly useful in our business, and very economical in the production of our namerous circulars, which we are enabled to print with great expeditions. We experience no are enabled to para-difficulty in the use of it. We are, Gentlemen,

Yours truly, COOK, MASTER & CO.

To the Electric Writing Company, 40A, King William Street, E.C.

PHENIX FOUNDRY,

PRESENT FORTHMAN, PROCESSOR STATES OF THE ST

JESSOP & CO.

To the Directors of the Electric Writing Co.

EVER COTTAGE, THE GROVE, BLACKHEATH, S.E., April 4th, 1878.

Sit,—In answer to your note of inquiry respecting the working of the Electric Pon, I have pleasure in saying that I find it in every way satisfactory, and that I can strongly recommend it. Faithfully yours,

HENRY LANSDELL Hon. Sec. of the Church Homiletical Society.

To the Secretary of the Electric Writing Co.

South Quay, Lynn, 18th April, 1878.

Gentlemen,—The Electric Pen with which you supplied me in November, 1876, has worked exceedingly well, and I would not now be without it, as I know of nothing so portable, cleanly, or crypoditions, to take its place. The cost of working it for the first sixteen mounts for the cost of working it for the first sixteen mounts of the cost of working it for the bittery charge for the first sixteen mounts.

I am satisfied that only increased publicity is needed to ensure a large sale.

You are at liberty to make what use you please of this. Yours truly,

THOS. COOK. To the Electric Writing Co.

WEST INDIA COMMITTEE, 9, BILLITER SQUARE, LONDON,

West ISAA. COMMITTER, 9, Dilaterus Schaue, Lootnoo, My des Sig.— There yeleascept is drom May This 1992 under superior of the Bestrie Pen in the repist multiplicatify you that my experience attisfactory. It has been in contact use in this office for three contacts of the superior of the superior of the superior of the superior of the superior of the superior which has been a great conveniency, realizing all the expectations which has been a great conveniency, realizing all the expectations which has been a great conveniency, realizing all the superior of the superior

A. Fainlie, Esq., C.E., Electric Writing Company. Secretary.

ACCOUNTAT'S DIFAIRMENT, PUBLIC OFFICES, WINNES,
Gendleum,—I have had the Electric Pen in constant use for
semu time past, and have pleasure here. He note in constant use for
semu time past, and have pleasure have been at the working utility
and general usefulness are all that can be derived. Its working utility
and general usefulness are all that can be derived.
Worst ALDENSELY & CA. Accountant to the Withers Local Doard.
Messer, J. DOSSELY & CO.,

Mesers. J. Donnelly & Co., 28, Victoria Street, Manchester.

MANCHESTER DIOCESAN BOARD OF EDUCATION, DIOCESAN CHAMBERS, 42, JOHN DALTON STREET, MANCHESTER,

May 1st, 1878.... Gentlemen,—I have found the Electric Pen very useful, especially in writing Circulars or Notices, or any papers of which a number of copies is required. There is no difficulty in working it, and it saves a great deal of time and trouble in copying and expense in printing.

(Signed) Yours very truly, J. ALSTON.

Messrs. J. Donnelly & Co., 23, Victoria Street, Manchester.

Manchester Creditors' Association of Wholesale Dealers, City Bullding, 69, Conforation Street, Manchester,

April 20th, 1877. Dear Sirs,—I am pleased to bear testimony to the great saving of time and labour effected by the use of your valuable Patent Electric

Pon.

The one you supplied us with has been of great service to us and has worked remarkably well.

Yours truly, JAMES ECKERSLEY. (Signed)

Messrs. John Donnelly & Co., 28, Victoria Street, Manchester.

Anglo-American Telegraph Company (Limited), 26, Old Broad Street, London, E.C., April 18th, 1878.

Sir,-Your agent having asked me my opinion of the Electric Pen, I beg to say that the one I have had about six months has worked well and has proved very useful.

Your obedient Servant, T. H. WELLS, Accountant.

The Secretary Electric Writing Company, 40A, King William Street, E.C.

NEWTON ABBOT SCHOOL, SOUTH DEVON, May 13th, 1878.

Dear Sirs,—Having proved the value of your Electric Pean in rapidly getting out large numbers of copies of the various papers that are in constant, use in a school, I must say I should not now like to be without it.

Yours faithfully, T. HACKWORTH, Principal.

The Electric Writing Company, Limited.



NELSON STREET, BRISTOL, November, 1877.

Dear Sir,—We have much pleasure, in reply to your request, in testifying to the utility of your Electric Writing Apparatus.

We use it extensively for our weekly and monthly price lists, instructions to our agents, letters to our enstoners, &c. &c. In proof of its success, we write this with the "pen," and remain,

Yours truly, H. H. & S. BUDGETT & CO. (B.C.P.)

To Mr. Charles Goodwin, Agent for the Electric Writing Company, 45, Nicholas Street, Bristol.

Mr. C. Goodwin.

TAUNTON, April 30th, 1878.

Dear Sir,—In reply to your inquiry, we are thoroughly satisfied with the Electric Pon supplied by you. We have now used it for some time, and consider it a very useful and economical apparatus.

BLAKE & HATCHET.

(W. II.) CHENICAL WORKS,

St. PHILIP's MARSH, BRISTOL, 28th April, 1878. We are pleased to say that the Electric Pen supplied has given us

THE AVON MANURE CO. To Mr. CHARLES GOODWIN, 45, Nicholas Street, Bristol.

CLIPTON AND REDLAND HOUSE AND ESTATE AGENCY, 7, West CLIPTON TERRACE, WHITE LADIES' GATE, BRISTOL,

Doar Sir,—We have much pleasure in informing year that we are very much pleased with the Beletris Writing Appearage with the Clestris Writing Appearage with the Clestris Writing Appearage with the first person of the contract and a loss without it. We consider that it far surpasses any measures at a loss without it. We consider that it far surpasses any through the have been without the work of the property of

Yours faithfully, DE RUDDER & CO.

Mr. CHARLES GOODWIN, 45, Nicholas Street, Bristol.

Sr. Stermen's Street, Bristol, April 29th, 1878.

Deer Sir,—I have much pleasure in bearing wintess to the utility of the Electric Writing Apparatus, which I have had in uso a considerable time. It is certainly the best and quickest means of duplication circulars, &c., that I know of, and its cost was soon covered by the reduction in printers bills.

Yours truly, WM. BRIGGS.

STEAM CONFECTIONERY WORKS, LEWIN'S MEAD, BRISTOL, April 29th, 1878.

Dear Sir,—In reply to yours of to-day's date, we can only repeat to you what we have already said to your London office, viz., that the apparatus answers our purpose, and we are thoroughly satisfied with it. Yours truly.

STANTON & CO. To Mr. CHAS. GOODWIN, Nicholas Street.

REDCLIFF STREET, BRISTOL, May 3rd, 1878.

Dear Sir,—We have pleasure in saying that the Electric Pen with which you supplied us last year is the most useful invention of the kind that we have seen, and we are well satisfied with it.

W. D. & H. O. WILLS. Mr. CHAS. GOODWIN,

CASTLE MILLS, SHREWSBURY, May 1st, 1878.

I am very much pleased with the Blectic Writing Apparentus I had some menths ago from you. When the steed lis once propared, an office boy can strike of any annear of copies, and hose capital have admits ago of the plant of copy annear of copies, and hose capital have admits ago of the strike of the strike and the strike of the strike and the strike of the strike and the capital strike in the strike and the capital strike in the strike and the strike and the capital strike in the strike is not him to strike in the

paid.

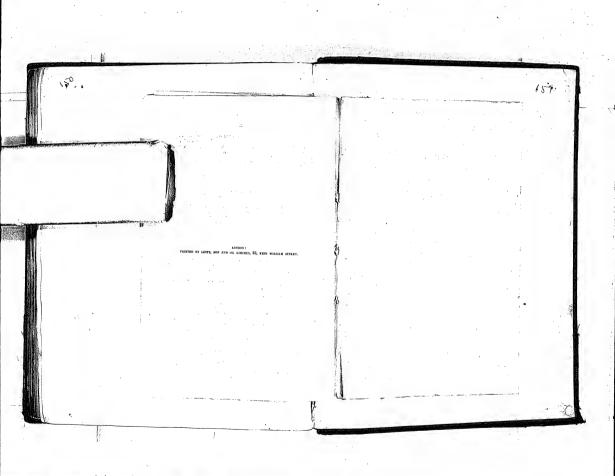
I shall be happy to show the apparatus I have to any one on this side of the country who would like further information than your circulars contain.

Yours very respectfully,

Yours very respectfully, W. L. BROWNE.

CHARLES GOODWIN, Esq.

Mr. Goodwin.



Scrapbook, Cat. 30,102

This scrapbook contains a few letters from October 1878 concerning the price of precious metals. The remainder of the volume consists of price lists, catalogues, and circulars from chemical and metal suppliers. The following dealers are represented:

H.B. Clarke (London)
Johnson, Matthey & Co. (London)
M.A. Reed & Co. (London)
J. Berger Spence & Co. (London)
Savary, Young & Co. (London)
Theodore Schuchardt (Gorlitz)
Charles Cooper & Co. (New York)
Reimmann & Baetz (New York)
C.A.F. Kahlbaum (Berlin)
Spencer & Waston (Newcastle-on-Tyne)
H. Trommsdorff (Erfurt)
The Electrical Supply Co. (New York)

Only the correspondence and the cover page of each catalogue has been filmed.

Luberatory & Assay Offices 2 Sity Road Of the Hinsbury Square). All our Adams London Ostelar 22 14 1878 Compand li 82 Prairies In reply to the engineer of the . To answer to your inquery of yestings date, we have the bearing of sudanie our free hit ofrields . practice only as a consulting mulateryfiel, Can have for Patienes feel toon thick is 32th for and day, but analyses and abayer. no should make a sherial quetation beyon for my larangua toters, Luclose you a small sample of the mores as also for other tool of - and in in a stock offeredy connect be afferment we have to suchative Feloriums, nighted in the form offsets and prine, with net matheble or Sing allentions has their directed for wany , dielite - bulgarla rake head alley of the about and Spidmin in sout and join which way and your buchase, hipring world be Gen, Who study of Leady Sin, and alleys a Frending to the powerting of identification what has advanced of the same of pullings Sings he all to afier you dance you region any spring The well de baneum in a colinger and we halled forms tolin way. I bergen to semant y arm confaithfully, connot be product commercially toucherstide. How Good his Good for whithy Sames adams En / Wille Johnson La William Co

37. GREAT TOWER STREET.

LONDON, E.C.

Dear Sig.

Having been appointed LONDON AGENT by Messrs, 1. CROSFIELD & SONS, of Warrington, Lancashure, for the Sale of their SILICATE OF SODA, adapted for Scap-making and other purposes, I now beg to offer you the various qualities as under, viz: -

Brown Lump in Casks of from 5 to 6 cwt. each ditto ditto ditto Solution 140 per cent. by Twaddle's Hydrometer. usual Casks Discount ±! Ditto 100 ditto ditto ditto Packages Free Ditto ditto

I shall have pleasure in making quotations according to your requirements for deliveries either in London, Liverpool, Hull or Goole, and the favour of your orders will greatly oblige,

Yours very truly,

H. B. CLARKE

PARIS EXHIBITION, 1878.

PLATINUM AND PRECIOUS METALS

JOHNSON, MATTHEY & CO., HATTON GARDEN, LONDON.

NEW PATENTED PLATINUM APAnd, roosing great proceduration of Solidonic
Acid, roosing great proceduration of Solidonic Acid, and the Solidonic Acid, th ASBESTOS GOVER for boiler, to retain the heat.

ASDESTOS COVER for boiler, to retain the heat. CONCENTRATING BOILER (Delphae's ystem),—A "shoe" form of still adopted in several manufactories since 1875, which works to the contract of the state of the contract SHALLOW BOILER (potented 1805) similar to the one-shown at the Loudon Enthibition, 1862, and working since then, embracing the following points, which, never theless, have lately been claimed points, which, never theirs, have lately been claimed points, which, never theirs, have lately been claimed to the contract of

joints, which, nevertheress, majorits, which, nevertheress, majorits, which, never the stable of apparatus.

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IMPROVED REFRIGERATOR of the most

IMPROVED REPRIJERATOR or no most effective form, simple, and easy to clean.

PLATINUM AND GOLD Prometer to determine the degree of heat in the builer.

NEW CONSTRUCTION of head and arm of Platinum boiler with cooler attacked, avoiding the inconvenience of lead serpentines. This arrange-

inconsenience of lead serpeniines. This arrangement works with perfect access.

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perfected in 1000, and since allogical for an imposition work. APPARATUS for the insumination of the process of Mesus. It.
St. Clause Devide and Deleay. The apparatus is falled inside with this affects of Patinium, and separated into compartments by three interior displaragus, the whole autogenously soldered.

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SET OF IRIDIO PLATINUM WEIGHTS. DEFORMULA LIFE MAN WELLIAM TO ME MELLIAM INCIDENT AND THE MELLIAM TUBES, Indian to per cont. to determine the permanency of the physical properties of the International Geodesical Properties of the International Geodesical Control of the International Geodesical Control of the International Geodesical Control of the International Geodesical Control of the International Geodesic Control of the International Geodesic Control of the International Geodesic Control of the International Geodesic Control of the International Geodesic Control of the International Geodesic Control of the International Geodesic Control of the International Geodesic Control of the International Geodesic Control of the International Geodesic Control of the International Geodesic Control of the International Geodesic Control of the International

HOLLOW SQUARE IRIDIO PLA-TINUM themomentical metre, to which can be given a length of four metres to make a Goodesique rule by the projects of Messrs, H. St. Claire De-ville and Mascart.

wille and Maceart.

PLATINIFEROUS METALS, viz.:—
Pase Ruthenism, z kilos (compressed inget), value
4,0,000 frant, z kilos (melted inget).
Pare Rhodium, z kilos (melted).
Pare friilium, z kilos (melted).
Pare friilium, z kilos (forged inget).

RARE METALLIC PREPARATIONS. Osmic Acid, Hyperuthenic Acid, Platinoryunid of Magnesium, Sodio Chloride of Rhodium, &c. FINE WIRES of the metals—Gold, Platinum

. 1000 g . 1016 . 850 . 1550 . 30 Silver

# 1	100 array	Control of the contro	TRIZE MEDALS PRIZE MEDALS AUTOM 191, 184, 187, 187, 187, 187, 187, 187, 187, 187
One PLOOIS, AND WARREIOUSES.	Annual Maria Carlo	The state of the s	HNSON, MATTHEY & OO., 178 of Cold. Silver, & Platinum, with a series and Meratures of Blatinum Syparatus. NO CARDEN WORKS, LONDON.
DE 1		COLUMN TO THE PARTY OF THE PART	SPECIAL 1887S None Silve None Silve Accepted Colombia Landary opinion Landary opinion Landary opinion Landary opinion Landary opinion Landary opinion Landary Landary Landary Landary

PARIS UNIVERSAL EXHIBITION, 1878.

NOTES ON THE EXHIBIT OF JOHNSON, MATTHEY & CO.

Ir is a matter of srientific history that the introduction for commercial uses, and the development of the Metallurgy of Platinum, have emanated from England, and are associated almost entirely with one firm. We worked Platinum for many years before any other commercial manufactory was established.

From the year 1800 to 1809 a relative of a present member of our firm was employed in working upon Platinum, and discovered the process for its treatment and consolidation, which, generally known as the process of Wollaston, has been until late years in use here, and up to the present time on the

The first appearance of Patitimus ever made for the concentration of sulpharic acid was completed in Docember, 1869s, and was supplied to same works now existing near London. The weight of Patisimus used in this supparatus with 25 omecos, and since that date we have supplied Patisimus and Patisimus wester to the important covers of works throughout England, her Colonies, and the States of America: also throughout the Continent, in Prance, Prenals, Austria, Russia, R

We would now wish to call your attention to our work in connection with this valuable metal under the following heads:—

THE METALLURGY OF PLATINUM.—The separation and production in a state of purity
of the metals, rare and precious, of which the native ore chiefly consists, viz. >—
PLATINUM.

ATINUM, IRIDIUM, OSMIUM, "THENIUM, RHODIUM, PALLADI

large quantities of which are now shown by us in a state of purity never before commercially obtained.

To those who understand the difficulty of these operations, the specimens we show must be of great
interest.

r. THE FUSION OF PLATINUM by the process first commercially brought to notice by those dislikupathed mps of science MM. H. St. Chier Deville and Debray in about the year 1836, and soon afterwards notiped by us. By the fusion of pure spenge Plantinum functed of its imple compression, uniting it by foriging under the old system, which must always produce metal more of test pormonly list obtained in a condition of the most perfect compenctors, strength, and intallity, and of increased resistance to the action of acid. We melt ingost of pure Plantom of any weight up to 1,0000 outnotes.

OUR PATENT AUTOGENOUS SOLDERING (i.e. the joining together of Platinum by means
of the oxyhydrogen blowpipe), the greatest advance made in the manufacture of Platinum for 50 years.

Experiments, with a view to carry out this process, were begun by us in the year 1850—perfected in 1860, and ever since adopted by us for all important work. The boilers, &c., shown by us in the London Exhibition of 1861 (under during 1860) were all manufactured upon this system.

It is manifestly more advantageous that the whole should be equally durable and uniformly of the same metal, without the inequalities and disadvantages which do and must always exist with gold

M. . A. REED & CO.'S MONTHLY QUOTATIONS,

12, PENCHURCH STREET, LONDON, E.C.

SOLE AGENTS FOR THE New Traces Squares Fources, Learner, Strike Benediction of the Trace of the Park Maymenters, Monacras, Sources, Parks, Tolking Sources, Sources, Parks, Tolking Strike Stri

FOR GOPER TW. TW PLATES, LESD OF ALL KINDS, ANTHONY, IRBN, SPELTER, PAINTS, COLOURS, AND CHEMICALS, Janus Tife, 1878.

QUICKSILVER PYRITES CUPREOUS	COBALT	ANTIMOMY	SPELTER	GUNPOWDER	_	TIN PLATES	SWEDISH STEEL				I ROM			BRONZE 1	TELEBON INCOME.								LEAD						,			
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SPECIAL QUOTATE			Verbights			Sycan Lead	,	~`	:	SAL AMMONIAC	Barron Group		POTASH		Риозриокия	MANGANESE	Line	COMPLEAS	BRIMSTON	Встасн	BARYTES	ARSENIC		Aunonia		ALUM	Acces			Acins		
SPECIAL QUOTATIONS FOR PURIS, OSLOSS, AND PRITIFICIAL MANUES.					Covan	Hearbounte	Crystals	Avetate	l Rough	. '	Sulphure	_	Muriate		~		Acctate	BOAAX	(Float L	45 per retit	Carbonate	-		ANNONA Carlenate	National Control		Agent	Sulphuric	15rde		Arctic	CHEMICALS.

PRIZE MEDAL, INTERNATIONAL EXHIBITION, 1862 Arid, Muzintic, Com. . . ., Hypophroph Nitrio, Com. 1:370 Police Col 75 .. 1-120 Pare 1:370 Potnes, Tart, Scales, " " 1-120 Nimus, 1-370 Sulphate, Pare Osslir, Pure Lad Acetate, Pure Phosphorie, P.B. " Nitrate, Com. Glacial n Pers Line, Bisubblite Sulphurous Hypophosph. A Change Annou, Hydrochlor, Page Hydrosniph. Liquid, 480 Mini Perchia. 900 Nitrate Otaliste Phosphate Sulphate, Pare Autim, Muriste Petres, Tart. Cryst. . Sulph. Precip. Aquatietis, Dipping " Gibber Barian Chloride, Pure Baryla Nitrate, Cryst. Pulc Bisaruth, Subcarb, Trisnitrate Copper, Sitraff Oxide, One Epoun Salts, 3 . 2 to 2 c Sponilia, Nitrate, Crast. Iron, Automio Citrate Sulphut .. Chloride, Sol. 1:500 ... Citate " Cabe....

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LONDON MONTHLY PRICE CURRENT OF CHEMICALS ᅜ CLARKE'S &c.

LONDON, E.C., October 12th, 1871

South Kensington DR. THEODOR SCHUCHARDT Joan Exhibition of scientific apparatus.

AND MINERALOGIST CHEMICAL WORKS

neralogical well as an T prize of the

MANUFACTURERS OF

Chemical & Physical Glass Instruments.

No. 96 FULTON ST.

NEW YORK, November 1st, 1878.

DEAR SIR: We, the undersigned, inform you and our friends and customers, that under this date we have formed a copart-nership under the name of REMEMANN & BAFTE, which will enable us to furnish Factories, Laboratories, and Oberniss with all kinds of Scientific and Commercial Class Instruments and Apparatus.

We mention a few of the most important articles which

rer manufacture:

All kinds of Glassware with Graduations, such as Standard Burettes, plain and stoppered—Modr's, Gelssler's, Gay Lasse's and Hind's Form—Adome, Octobio and Measuing Physics—Cylinders—Physics, with from 20 to 69 lb. Mercher-Betterf trade—Hoffmany, I're's and Bunner's Education of the Mercher-Scheibler's Apparatus for the determination—Graduation of the Company of we manufacture:

—Test tibes, etc.

We will send a Price-List of our Manufactures as soon as we can have one prepared and printed. We shall be happy to receive your commands, and loop to merit a continuate of your favors by prompt attention to the same, good workmanship, and low prices.

Yours very respectfully,

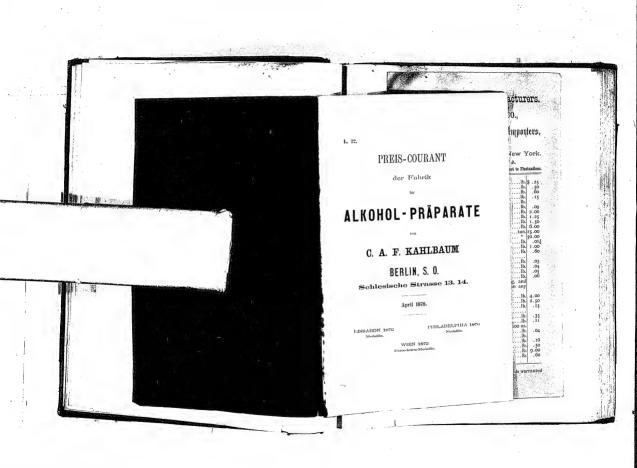
REINMANN & BAETZ,

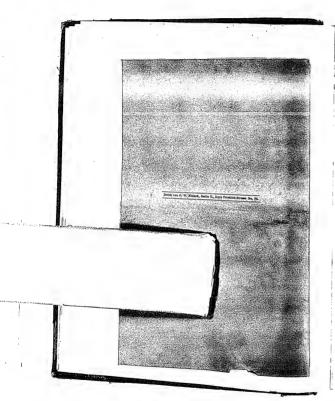
A. L. REINMANN. W. BAETZ

N. B.—Special attention given to repairing and orders for extraordinary Apparatus according to sketches and description.

QUOTATIONS GIVEN ON APPLICATION.

ickage Prices, subject to Fluctuations.	TERMS NET CASH.
Acetic No. 8	Iron, Acetate,
" in Carboy,	Oxide, Black pure, b. 3, 10,
" Glucial, German, g. s. b., 15, 1b.	" Sesquentoride,
Muriatic, ch. pure, l gull. g. s. b., 25, lb.	
Nitric, ch. pure, & gull g. x b., 25, lb.	" Sulphuret,
Pyrogalic, German, c. b., 6, 02	Kuolin
ol, Absolute, pare, g. s. b., 12, 15,	Leith, Certain, Limb, of the comme
, Burnt, c. b., 20, lb.	" Peroxide,
Chrom, pure, c. h., 9, lb.	Lithin, Carbonate,
oun, Aque, PEEF, 20°	Londstone,
Smirit of Contract , 20 , gas 0,10,10,	"Oxide Black powdered by cask-lb.
Nitrate, fased, c. b. 9, lb.	" Gray, powdered, by cask.lb.
onium, Bromide, c. b., 9, 1b.	" Peroxide, pure,
Undertile, pure,	Mercury Cyanide,
	" Sulphate
" Sulphate, pure, e. b., 0, lb.	" and Ammonia,
mony, Oxide,	Paper, Litmus, Blue, Intuitred
ta Carbonate, puree. b., 9, lb,	Platinum, Chloride, drv
Dust, by the bbl,lb.	Potassa, Bichromate, c. p.,
nine,g. s. b., 12, 1b.	" Chromate,
nium, Bromitle,	
" Metallic	" pure
ium, Bromide, e. b., 9, lb.	Potassium, Cyanide,
ium, Chloride, pure, b., 9. lb.	" Sulphuret,c. b., 9, 1b.
wine Water	Bhiralene inodor, sp. 070
per, Carbonate,e. b., 9, 1b.	Salt Tartur,
Nitrate,	Silver, Nitrate cryst, and fused, I, 2 and
Salavide Red	" Nitrate, gryst, & fused, pure, 100 oz., oz.
Salplinte, pure, e. b., 9, lb.	Soda Acetute, b., 9, lb.
alt, Oxide, F. K. O.,lb.	" Bicarbonate, pure,
othon, plan,b.	" " in blile





Chemicals for Glass Manufacturers.

CHARLES COOPER & CO.,

Manufacturing Chemists & Anyonters,

WORKS AT NEWARK, N. J.

HARLES COOPER, 3

New York.

Other Chemicals made to Order. All Goods warranted as represented.

PLATERS, QUEMICALS.

CHARLES COOPER & CO., Manufacturing Chemists & Amporters, 191 WORTH STREET.

NEW YORK. Laboratory at Newark, N. J. TERMS, NET CASH, ACID, Muristic 20+.

20° by carboy bb. 3 Chem, pure bb. 25 AMMONIA, Currentmed

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Cyanide Ib.
Nitrate, chem. pure Ib.

With a Number of other Chemicals. With a Number of other Chemicals.

Bottles or Cans charged extra or exchanged if in good order.

Old Nickel Solutions worked over and pure Saits returned exchange. Nickel Waste resmelted.—Correspondence solicited.

WATSON SPEN

PLATERS' QUEMICALS.

CHARLES COOPER & CO., Manufacturing Chemists $\dot{\chi}$ Amporte 191 WORTH STREET,

NEW YOR

Laboratory at Newark, N. J. TERMS, NET CASH.

With a Number of other Chemicals.

Battles or Cans charged curra or exchanged if in good order.
Old Nickel Solutions worked over and pure Salts returned
exchange. Nickel Waste resmelted.—Correspondence solicited.

PLAT

CHA Manufac

Charles Couper, TERMS, NET

ACID, Muriati

NICKEL AN Sul Chi PAPER, Lita PLATINA, C POTASSA, C

SODA, Bisul Pyroi

Bottles or Old Nickel exchange.

Ueber die pharmaceutischen Praparate, als Extracte Pflaster, Pulver, Tincturen etc. wird eine besondere List ausgegeben.

Die Preise dieser Liste verstehen sich ab hier, abme Ver bindlichkeit, in Reichswährung und in metrischem Gewicht Bei Auftregen in fremden Gewichten findet die Reduction In unten angegebener Weise statt.

Ziel drei Monat oder per comptant mit 14 % Sconto bei Beträgen über 50 Mark. - Zahlbar in Reichswährung. Coupons werden nicht in Zuhlung genommen. Beträge unter 50 Mark werden franco erbeten. Leere Gefasse und Emballagen in gutem Zustand werden innerhalb acht Wochen 20 Procent unter herechnetem Preis franco zurückgenommen, Ballons nur nach Uebereinkunft. Bei Quantitaten unter % Kilo wird der 100 rosp. 10 Gramm-Preis, unter 15 Kilo der Kilo-Preis berechnet. In der Factura werden die Pfennig durch Erhöhung auf 5 resp. 10 Pfennig abgerundet, cinzelne Beträge aber nicht unter 10 Pfennig berechnet.

Vom Eisenbahn-Transport aind ganzlich ausgeschlossen: Picrinsaure und Picrinsaure Salze. Bedingungsweise, also nur mit den Ballon- resp. Feuer- oder Saure - Zagen werden zum Transport zugelasten: Aether, Aetzlaugen, Alcohol und Alcoholpraparate, Benzin und audere flüzzige Hydrocarbüre, Chloroform, Chloraaures Kali, Collodium, Mineralaauren, Mirbanol, reine Picrinskure, Phosphor, Salmiakgeist, rauchende Salpeterabure, Schwefelkohlenstoff, sowie andere leicht brenabare und atzende Flüssigkeiten, und alle Artikel in Ballons. Dieze letzteren, sowie alle Colli mit genannten Gegenständen darfen das Gewicht von 75 Ko. nicht übersteigen. Rauchende Salpetersaure und Phosphor derfen nicht mit andern Waaren zusammen, soudern nur jedes far sich verpackt werden; die rauchende Salpetersaure nur in Kleselguhr.

Da die mit den Ballon- resp. Feuerangen beforderten Gnter in der Regel ikugere Zeit unterwege bleiben, so empfiehlt es sich, die Auftrage so einzurichten, dass beiderlei Waaren, die

mit Feuerzug und die mit genöhnlichem Zug zu versendenden, getrennte Colli bilden können, damit letztere nicht unnbeligerweise den langsamen Transport der ersteren theilen.

Im Interesse der geehrten Auftraggeber wird, wenn ausdrücklich Gegenorder nicht erfolgt; innerhalb des deutschen Reichs die Versicherung aller dem Bruch leicht ausgeseinten Colli, welche Flüssigkeiten enthalten, gegen Vergitung einer Pramie abernommen. Die Garantie erstreckt sich auf so weit als die Colli in den Händen der Bahnverwaltung sind, and fallt weg, wenn die Versicherung der Waaren abgelehnt wurde, sei es for den einzelnen Fall, oder ein for

Die Versicherungsprämie beträgt für jedes Collo: im Worthe bis incl. 50 M u. für Entfernung bis incl. 150 Kilom. 30 A Zuschlag, also 45 A

 bis incl. 150 Kilom. 160 pCt. Zuschlag, also 60 A für jede weiteren 75 Kilometer Entfernung 10 & höber.

Die Verbindungen von Brom, Chlor, Jod etc. mit organi-

schen Radicalen sind unter letzteren aufgeführt; so z.B. Jodacthyl als Acthyl jodat n. s. f.

1K = 100 Kilogramm. 1 Phl. Wiener Gew. = 550 grm. K = Kilogramm. 1 Loth - - = 17,5 II = Hectogramm 1 Pfd. Russ. . = 410, D = Decagramm. 1 + engl. + = 450, g = Gramm. 1 course epel. + == 28.85 Ph. G. = Pharmacop. Germ. 1 Pfd. span. . = 460, S = Siedenunet 1 core + = 28,65

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Bruch von Gerbergt & Bebreiber in Erfert.

Ziel 3 Monate oder per Cassa, innerhalb drei Worken vom Facturatage, mit 11/2% Sconto, mit Ansnahme der Notirungen für Gold- und Silber-Praparate, Chinin und Morphium, die nette Casse, ohne Sconto-Abzug verstanden sind. Coupons werden nicht in Zahlung genoramen. - Bei Wechseln auf Nicht-Bankplätze wird Berechnung der Incasso-Spesen vorbehalten und keine Verbindlichkeit wegen rechtzeitiger Prasentation und Beibringung von Protest übernommen. - Emballagen werden, wenn innerhalb 6 Wochen in gutem Zustande franco retournirt, 20% unter berechneten Preis, zurückgenommen. - Preise frei ab Fabrik, Ohne Verbladlichkeit für Verlinderung der Preise, Bruch, Beschildigung oder Verlust der Waare unterwegs,

Metrisches Gewicht. 1 Kilo à 1000 Granno. 1 Granm à 10 Dorigramm

à 10 Centigramm. 1 Pfund Wiener Gewicht - 500 Gramm. 1 Loth I Pfund Russ. - 413 I " Engl.

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Inhalt.

Pag. 1. Chemische Präparate . 44. Filtrir-Papier.

.. 45. Titrirte Flüssigkelten, Apparate.

, 46. Diverse Satemlangen. , 47. Mineralien,

Die Preise der Chinin-, Jod- und Bromsalze in dieser Liste sind günzlich unverbindlich!!!

Ausgewählte Crystalle sämmtlicker, in Herra Professor Dr. Groth's physikalischer Crystallographic genannter Salze, in besonders schönen und grossen Individuen.

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Scrapbook, Uncatalogued, Accession 465 (NOT FILMED)

This scrapbook, kept by Edison's bookkeeper William Carman, covers the years 1874-1875, 1878, and 1820-1831. There are also a few items for the years 1919 and 1922. The clippings that relate to Edison and his inventions are duplicated in other scrapbooks at the Edison National Historic Site. The other items in this scrapbook concern William Carman and his family. Many of these clippings were retained by members of the Carman family, who donated the book to the EMINS in 1983.

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The pages which were microfilmed for this collection are in generally good condition in the original. There are some pages, however, which due to age are lighter than normal. Additionally, because some volumes are very large and have been bound tightly and cannot be unbound, there are intermittent occurrences of slight distortion of the edges of a small percentage of the pages. We have made every technical effort to ensure complete legibility of each and every page.

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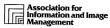
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